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### BS News

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FEBRUARY 2007

# bs news

building services news

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**Cork Kyoto  
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**AECI News**

**Face to Face —  
Patricia Crisp, IPFMA**

# Pellet Heating Systems — Made Simple

Janfire is the market-leading Swedish company specialising in wood pellet technology for nearly 25 years. It has now joined forces with heating specialists Hevac to bring its vast range of heating products and systems to Ireland. All applications are catered for, be it domestic or commercial. Key features and benefits common across the entire range are:—

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*Janfire Boilers will be on display on the Hevac stand at The Energy Show taking place in the RDS, Ballsbridge, Dublin from 25-26 April.*



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South Ring West Business Park, Cork. Tel: (353) 021 - 432 1066. Fax: (353) 021 - 432 1068.



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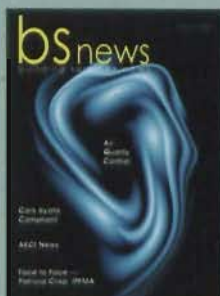
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## opinion

## At Last ... Domestic Installations Come Under the Microscope

Having long-since bemoaned the lack of progress in relation to a register of domestic installers, we commend Bord Gáis Networks' recently-unveiled initiative on the matter. The Registered Gas Installers (RGI) Programme is long overdue and will undoubtedly go a long way towards cleaning up the sector.

The fact that it is a Bord Gáis Networks' managed register and not a Government-led scheme clearly illustrates where the problems lie in relation to this. Indeed, against this background the company deserves even more credit for spearheading this initiative.

Moreover, the RGI is not just a nominal register that any installer can subscribe to. It is a professionally-managed register of competent installers who hold certification in gas safety training, adhere to Irish installation standards, and hold adequate public liability insurance.

It is also evident from the widespread advertising campaign surrounding the programme that Bord Gáis Networks has properly thought the concept through. Unless the public at large is made aware of the difference between an RGI installer and a non-registered contractor, they cannot make valid comparisons when comparing quotes. This consumer educational role is also the responsibility of the Government but, once again, Bord Gáis Networks has taken up the challenge.

While the RGI directly applies to gas installations, there is no doubt that it will have a very positive effect on the domestic installation sector as a whole. It will lift standards across the board and hopefully create a level playing field for professional, qualified and fully-competent installers who have to operate in a marketplace which, for the most part, is unregulated.



## trade news + product information

### titanic development launched in dublin

Plans for the largest mixed-use waterfront development in Europe were unveiled in Dublin recently. The Minister for Finance, Brian Cowen, TD, and the Chairman of the Belfast Harbour Commissioners were among those present at the event in the Royal College of Physicians, Dublin.

The site, now known as Titanic Quarter, is located on former shipbuilding land which launched the famous RMS Titanic. The 185-acre site, with further potential for up to 300 acres on the banks of Belfast's river Lagan, will be transformed into a maritime quarter with the mixed uses of housing, business, retail, tourism, education, hotels, restaurants, cafes, bars and other leisure facilities.

Phase I, which includes 450 apartments, an hotel and offices, plus public realm and road infrastructure, is already underway while Phase II will include residential units, employment uses, leisure uses, local services, public realm and open space, vehicle parking, roads and ancillary infrastructure works, including the Titanic signature project.

Contact: [www.titanicquarter.com](http://www.titanicquarter.com)



Conal Harvey, Director of Operations Harcourt Developments and Deputy Chair, Titanic Quarter with Brian Cowen, Minister for Finance; Pat Doherty, Chair of Harcourt Developments and Chair, Titanic Quarter; and Len O'Hagan, Chair, Port of Belfast at the launch of Titanic Quarter at the Royal College of Physicians in Dublin

### gasco ireland moves

GASCO Ireland has moved to new premises located at Unit 2, Broomhill Business Park, Broomhill Road, Tallaght, Dublin 24.

Telephone numbers, fax and email remain the same.

Contact: 01 - 462 7311; email: [gidublin@gasco-group.ie](mailto:gidublin@gasco-group.ie)



### aes — ups power to rely on

Ardilaun Electrical Services (AES) has been supplying premium uninterruptible power systems (UPS) for more than 10 years. Whether the application calls for a stand-alone UPS for small to medium sized businesses, or high power requirements for large operations, AES has a solution.

AES represents a strong portfolio of leading-brand names, including the Chloride range of UPS systems. Of major significance is the recent arrival of the new Chloride 80-NET range. Available from 60Kva to 120Kva with the option to either parallel (N+1) or synchronise (N+N), the 80-NET can be configured to suit all needs. With a low input THdi and high input power factor, plus an inverter capable of supplying a full KVA to KW on the output, it is proving popular across all industry segments.

This new product is the perfect complement for the existing portfolio which includes high quality UPS systems; power conditioners/harmonic compensators from Salicru Electronics; and 5 + 10 year VRLA batteries for the UPS, DC power, emergency lighting and alarm industries from Power Batteries.

Contact: Gerard Holohan, AES. Tel: 01 - 460 1177;  
email: [info@aesltd.ie](mailto:info@aesltd.ie)



## A world without restrictions. The GHP VRF system.

The SANYO 3 Way ECO G Gas Heat Pump uses natural gas or LPG as the main source of power providing 56.0kW of cooling, 67.0kW of heating and no restrictions on power supply.

As well as being the only GHP VRF system to simultaneously provide heating and cooling, it also helps to reduce greenhouse gas emissions by an average of 5 tonnes per operational year. It's no wonder the SANYO 3 Way ECO G Gas Heat Pump is the natural choice.

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AIR CONDITIONERS



## trade news + product information

### pump controller from manotherm



The MPC pump controller from Manotherm provides versatile level control in a standard 1/4 DIN package. Designed for use with almost any, style level transmitter, the unit displays the present level set point value.

Incorporated within the unit is pre-programmable level differential for on/off control of one or two pumps, valves or other devices through two SPDT relays. Also featured are two additional programmable alarm contacts with front alarm light indication.

The MPC is flexible and incorporates a user-friendly programming menu with built-in alternation, over temperature protection and seal failure monitoring. Moreover, the front face meets NEMA 4X for outdoor panel mounting.

Contact: Bob Gilbert, Noel Walsh or Robert Gilbert, Manotherm.  
Tel: 01 - 452 2355; email: info@manotherm.ie

### ptl appoints diamant

Peter Diamant (right) has been appointed Sales Director of Professional Team Ltd (PTL), the Irish subsidiary of the MTS Group which owns the Ariston brand. Peter had extensive experience in the heating sector with market-leading companies before he joined the MTS Group in 2000 with whom he has served in the UK and Russia.

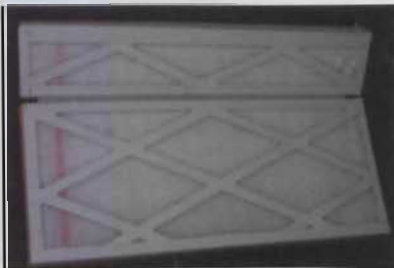
In his new role Peter will further develop the company as the primary supplier of heating and hot water solutions in the Irish market, operating out of headquarters located in Damastown Avenue, Dublin 15.

Contact: Peter Diamant, PTL. Tel: 01 - Tel : 01 - 810 3723; email: info@uk.mtsgroup.com



### eu p8 pollen filter from MTD-solutions

MTD Solutions introduced its new EU F8 pollen filter for the MTD-ERV 300 energy recovery whole house ventilation system at the AHR 2007 exhibition in Dallas, USA, recently



The filter is manufactured in Ireland and offers the highest level of filtration outside of a clean room environment.

The MTD-ERV 300 now uses two of these EU F8 filters in each unit, thereby filtering the outside air entering the house while also filtering the air from the house before it reaches the heat exchanger.

Contact: Ciaran King, MTD Solutions. Tel: 045 - 900 590;  
Mobile: 086 - 255 9659.





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Unipe Controls



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- From Sweden NIBE offer ground-source, Air-to-Water and exhaust air heat pumps. NIBE are Europe's largest producer of heat pumps.



## trade news + product information



### bio-friendly power from PSE power systems

PSE Power Systems has released the new AJ Power 7-series Scania range of generating sets which are designed to run on 100% BIO-diesel. The units are powered by the latest DC12 and 16-litre engines in the power range 300 to 550kVA. They operate on FAME (Fatty Acid Methyl Ester) of which RME (Rape Methyl Ester) is the most common.

Dr James Cochrane, AJ Power Director of Engineering, explains: "The challenge was to provide a product of equivalent performance to our existing diesel-powered range without cost implications for the client. From a product perspective this has been achieved and we

can now supply these units at the same price as the diesel equivalents".

The new range was developed in response to industry demand with validation testing being completed in Germany. PSE Power Systems expects to release BIO-diesel fuelled derivatives of the AJ Power 5-series range, with outputs from 80 to 250 kVA, in the coming months.

Contact: Padraig Smith, PSE Power Systems. Tel: 01- 460 0596; 069 - 61066;  
email: [padraig@pse.ie](mailto:padraig@pse.ie); [www.pse.ie](http://www.pse.ie)

### finder appoints drives & controls

Finder, the leading manufacturer of relays, timers, interface modules, relay sockets and accessories has appointed Drives & Controls to stock and distribute its full range of products in Ireland.

The range includes subminiature, miniature and low profile PCB relays, general purpose and power relays, multi-function timers, time clocks, thermistor relays, voltage monitoring relays, level control relays, step relays and PIR detectors. In fact, the product range covers in excess of 7,000 products.

Drives & Controls is already an established distributor of industrial control and automation products and this new appointment adds considerably to its ability to provide all-embracing solutions in this sector.

Contact: Aidan McDonnell, Drives & Controls. Tel: 01-460 4474;  
email [info@drivesandcontrols.ie](mailto:info@drivesandcontrols.ie)



### chp solutions from F4energy

F4Energy is the leading supplier of turnkey microturbine and reciprocating engine CHP solutions to the Irish marketplace. Founded by former ESB and Siemens professionals, the company brings its extensive experience and knowledge to bear on designing, installing and commissioning CHP solutions for all manner of applications.

Moreover, F4Energy will also help clients avail of the Government CHP grant scheme. Up to 30% investment grant support is available to cover the plant capital and installation costs of qualifying installations. Among those who have already availed of F4Energy's services are Adare Manor, Radisson and Marriot Hotel Groups, the Health Services Executive, and the University of Limerick.

Contact: Aidan McDonnell, Business Manager, F4Energy. Tel: 021 - 486 1420; [www.f4energy.com](http://www.f4energy.com)



## trade news + product information

# the energy show

### sensing smoke directly in the duct



A duct smoke detector called TDD (True Duct Smoke Detector) from Automatik in Sweden is said to be able to detect smoke at a very early stage in the rough environment of a ventilation duct, without giving false alarms.

TDD is an optical obscuration designed to function inside the ventilation duct. The sensing part of the detector covers as much as possible of the duct. An infrared beam is transmitted through the sensing tube in the duct and, if smoke is present, the beam is obscured so an alarm signal is given.

The TDD-detector has an adjustable level of sensitivity that goes from 3% to 25% (0,1 to 0,9db) obscurity to cater for all the different environments that can exist in a duct. An accommodation is made to cater for the presence of dust, water droplets and air velocity.

Contact: Ewert Johansson,  
email: [ewert@automatikprodukter.se](mailto:ewert@automatikprodukter.se)

### lg's multi v space & energy saver

LG's new Multi V Space is an energy efficient, space saving VRF unit intended for installations where optimum performance is needed to deliver summer cooling and winter warmth. It is suited to a whole range of sites — office blocks, hotels, conference suites, retail and residential apartment blocks.

Despite being designed with internal installation in mind, Multi V Space may also be installed outdoors. It is entirely inverter driven — both compressors and fan motors. It is also claimed to be extremely quiet in operation, up to 10dB quieter than equivalent capacity conventional systems.

The minimum installation space requirements are 900mm front access (service space). The rear of the unit can be fitted flush against a louvered wall, or ducting can be fitted if required (ESP can be increased if necessary up to 120 Pascals). Side access is not required so the units can be placed alongside each other.

Contact: Austin McDermot, Core Air Conditioning.  
Tel: 01 - 409 8912; email: [info@coreac.com](mailto:info@coreac.com)

Stay  
competitive  
through  
sustaining  
energy

Wed 25<sup>th</sup> and Thurs 26<sup>th</sup> April 2007  
Industries Hall, RDS,  
Ballsbridge, Dublin 4.

**The energy show** is a must for anyone with an interest in or responsibility for energy usage in business.

- **The two day exhibition** presents a vast array of innovative products and services.
- **Seminars** will cover renewable and efficient energy technologies.

**Attendance** at the show is essential for suppliers and business customers of sustainable energy technologies.

For visitor and seminar details visit  
[www.sei.ie/energyshow](http://www.sei.ie/energyshow)



## trade news + product information

### iet sustainable conference

The Institution of Engineering & Technology (IET) is to hold a 1-day conference — entitled Sustainable Energy Technologies: Implementation in Industrial Premises, Retail Parks & The Services Industry, at the SEI Conference Theatre in Dublin on Tuesday, 27 March.

The IET was formed approximately 12 months ago from the merger of two long-standing engineering bodies, the Institution of Electrical Engineers (IEE) and the Institution of Incorporated Engineers (IIE). A more detailed feature on the Institution will appear in the March issue of *bs news*.

In the meantime, those interested in the forthcoming conference should log on to [www.local.iee.org/ireland/senior](http://www.local.iee.org/ireland/senior)



Caragh Flannery,  
IET Chairman

### IPFMA CPD events

Forthcoming events in the continuing IPFMA CPD Programme — which take place at 5 Wilton Place, Dublin 2, starting at 1pm, are as follows:—

- Residential Management Workshop, Thursday, 1 March;
- Reinstatement Valuations, Thursday, 8 March;
- Spencer Dock site visit, Thursday, 22 March.



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FACILITY MANAGEMENT  
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Contact: Louise Caldwell, IPFMA. Tel: 01 - 676 5500; email: [louise.caldwell@ipfma.com](mailto:louise.caldwell@ipfma.com)

### cylon cracks middle east

Cylon has made a major breakthrough in the Middle East by signing a distribution deal with Verger et Delporte to supply its smart energy control solutions to the United Arab Emirates. Cylon has been doing business in UAE for the last five years but the new partnership with Verger et Delporte — one of the leading mechanical and electrical solution providers in the UAE — means it can capitalise on the massive construction boom across the whole of the United Arab Emirates.

Indeed, this process has already commenced in that Cylon has won a sizeable contract associated with the Bavaria Executive Suites in Dubai. This project is worth over \$45 million to Verger et Delporte with the building controls portion worth approximately \$1.5 million.

News of this breakthrough was revealed during An Taoiseach, Bertie Ahern's recent visit to Dubai. Cylon is one of the approximately 50 cross-sectoral companies that are now part of Enterprise Ireland's new scaling programme which is designed to assist SMEs develop such links.

Contact: John Fallon, Cylon Controls. Tel: 01 - 245 0500;  
email: [info@cylon.com](mailto:info@cylon.com)



Along with Bertie Ahern and other Ministers are Tony Antonniades, Contracts Manager, Verger et Delaporte; Pierre Camus, Managing Director, Verger et Delaporte; and John Cameron, Middle East Manager, Cylon Controls



## trade news + product information

## rise to sustainable ventilation

Historically, natural ventilation for commercial buildings over a few storeys high was not a viable option. However, recent technological advances mean this sustainable approach can now be effectively employed. Indeed, its use by White Young Green (WYG) helped the company win the prestigious PPP project for a new £24 million, 12-storey building in Belfast which won the Liam McCormick Building of the Year Award.

Richmond Building Products worked closely with Passivent and WYG on the project to develop a mixed mode ventilation solution. Richmond supplied 65 Aircool units, which were installed in the façade on floors 2-7 of the building. The units have been set to operate whenever the external air temperature is between 14°C and 26°C, and draw fresh air into the ceiling voids.

An underfloor mechanical heating and cooling system draws the air down and through the office space to maintain a fresh, yet draught-free environment, while reducing heat gain generated by staff, computer screens and outside sunshine during the day.

The Aircool units function 24 hours within the preset temperature bands, extracting warm air as the building cools at night to create a pleasant internal environment for the following working day. This also reduces demand on the mechanical cooling system.

Contact: Richmond Building Products.

Tel: 01- 412 4600 (Dublin); 021- 463 5454 (Cork).



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## trade news + product information

### sustainable energy awards 2007

Irish SMEs could avoid €100 million per annum in energy costs by exploiting opportunities for energy efficiency gains, according to David Taylor, Chief Executive, Sustainable Energy Ireland (SEI). David was speaking at the launch of this year's Sustainable Energy Awards which were devised to encourage and reward excellence in energy management.

The awards focus on the individuals and groups who demonstrate a commitment to include energy management as part of their overall management structure and provide an opportunity for organisations, regardless of size, to gain public recognition for their achievements in reducing energy use and emissions.

In 2007 awards will be made in eight categories:— Energy Efficiency Project in Small and Medium Enterprise; Energy Efficiency Project in Large Enterprise; Renewable Energy Project; Energy Awareness Campaign; Energy Service or Supply Company; Excellence in Building Design or Specification; Coordinated Energy Management Programme; Energy Manager. The closing date for nominations is Friday 27 April 2007.

Contact: [www.sei.ie](http://www.sei.ie)



Ollie Brogan, ESB Customer Supply with David Taylor, SEI

### legionnaires' disease training courses

Knight Consultancy has announced details of its annual spring Legionnaires' training courses which are devised to give guidance on the disease to public health and environmental health officers; H&S personnel; facilities managers; building managers; local authority personnel; hospital engineers; and maintenance managers. There will also be a practical element on disinfection for plumbers and other "hands on" people as required.

The course content will cover the history of the disease (including case studies); legislation; route of infection; risk assessment; management and control requirements; hot and cold water systems, including spa baths; residential accommodation; cooling towers; cleaning and disinfection. Cost is €230 (plus VAT) per delegate. This includes lunch and training material.

Venues and dates are:— Antrim: 22 March; Dublin: 23 March; Limerick: 22 May; Omagh: 23 May; Kilkenny: 17 July.

Contact: Mike Knight, Knight Consultancy. Tel: 0044 7966 196383;  
email: [mikehknight@blueyonder.co.uk](mailto:mikehknight@blueyonder.co.uk)

### cork students win national elec eng quiz

Students from Christian Brothers College, Cork were the overall winners of the National Elec Engineering Quiz that took place simultaneously in four colleges — UCC, DIT, NUI Galway and Waterford IT.

UCC have held a successful Elec Eng Quiz for the past five years and DIT organised the first such quiz in Dublin in 2006. This was the first time that it was run on a national scale.

The quiz is open to fifth & sixth year students, with a team of four students participating from each school. The overall prize of €2000 worth of audio-visual equipment for the winning school was sponsored by the Microelectronics Industry Design Association Ireland and was presented during Engineering and Technology Week of Wonder [www.weekofwonder.ie](http://www.weekofwonder.ie) earlier this month.

Contact: Marie McSweeney, UCC. Tel: 021 - 490 2371



Overall winners of the National Elec Engineering Table Quiz are Kyle McEnery with Michael O'Byrne, Dr Bill Wright, Dept of Electrical and Electronic Engineering, UCC, Tony Buckley and Eoin Kiely.



## trade news + product information

### enviro linear diaphragm pumps

Charles Austen Pumps has introduced its new Enviro series of linear diaphragm pumps. Designed for applications requiring extremely quiet and high-efficiency operation, Enviro offers a low-pressure, constant-flow, oil-free air source for environmental or industrial use.

A comprehensive range of models is available offering flow rates in steps to avoid energy wastage from 30 l/min to 120 l/min with service life up to 25,000 hours. Frost and rain proof, Enviro is ideal for aeration of wastewater, air sampling and aquarium oxygenation. It is equally suited for use in spas, whirlpools and decorative water features.



Contact: Lisa Birch, Charles Austen Pumps. Tel: 0044 1932 355277;  
email: lisa.birch@charlesausten.com

### mostra convegno expocomfort

The 36th Mostra Convegno Expocomfort (MCE) will be held from 11 to 15 March 2008 at the new Fiera Milano exhibition centre in Italy. It will feature technology dedicated to domestic and industrial plant engineering catering for heating, air conditioning, refrigeration, valves, plumbing technology, water treatment, renewable energies and services.

Expobagno, the exhibition dedicated to the bathroom world, will be staged parallel to MCE 2008. Featured will be ceramic sanitary ware, taps and fittings, wellness facilities, bathroom accessories, tiles and finishes.

### crossflow relocates to dublin 12

Crossflow Airconditioning Ltd has moved from Sandyford and is now based at 50 Hawthorn Road, Western Industrial Estate, Dublin 12.

Contact: Stephen McAteer, Crossflow Airconditioning.  
Tel: 01 - 427 9300; email: mail@crossflow.ie



### toshiba binders & selection software

Toshiba Air Conditioning has developed a comprehensive A4 reference binder for hvac specifiers. The binder covers all the company's R410A VRF and split system ranges and contains both product descriptions and technical specification data.

New editions of its product selection software are also included. Updated service engineers' A5 technical manuals are available separately, along with companion price lists for 2007.

Contact: Derek Phelan, GT Phelan. Tel: 01 - 286 4377;  
email: derek@gtphelan.ie



## Air Movement & Air Quality

### ish frankfurt — 20 halls, 2300 ac exhibitors!

For the first time two forums in the field of air conditioning and refrigeration technologies will be offered to trade visitors at the forthcoming ISH (Frankfurt am Main: 6 to 10 March 2007). In an exhibition area of some 1,000 sq m, Messe Frankfurt will present the Air-Conditioning Forum as part of ISH, the international trade fair for bathrooms, building, energy, air conditioning technology, and renewable energies.

This forum will focus specifically on room air-conditioning technology while the IKK Building Forum's theme (to be held at the same time) will be those areas of refrigeration technology with particular relevance to buildings.

The air-conditioning forum, includes four special themed exhibitions — "Marketplace: Air-conditioning and Ventilation Units"; "Architectural Solutions with Central Air-Conditioning Systems"; "Hygiene in Air-Conditioning Technology"; and the "Special Exhibition for Domestic Ventilation".

Room air-conditioning units have established a secure place in many areas of application and market segments. They have succeeded in encompassing new areas of application such as, for instance, larger hotel complexes or office buildings, which are fitted with the most

modern multi-split technology. The "Marketplace for Room Air-Conditioning Units" will showcase the whole product range for room air-conditioning equipment, from simple portable units to VRF controlled multi-split systems.

"Architectural Solutions with Central Air-Conditioning Technology" will demonstrate to planners, architects and investors the architectural freedom offered by centralised air-conditioning technology in the overall conception of the building as well as in the design of the facade. Since, according to the relevant EU Directive, the architect is also responsible for energy and cost efficiency, these issues are to form another core area of the special exhibition.

Visitors will be introduced to the functional unity of centralised air-conditioning in combination with architectural solutions such as radiant cold ceilings, suspended ceiling panels, aesthetically attractive vents etc.

"Hygiene in Air-Conditioning and Ventilation Technology" will present modern system technologies for the professional maintenance and cleaning of air-conditioning and ventilation installations. These include, for instance, innovative robotic systems which guarantee that airways are impeccably cleaned in a professional manner.

A further core area of the special exhibition is represented by air-humidifying systems both for comfort and for productive environments.

"Domestic Ventilation" already has its own tradition and has appeared at ISH since 1991. At the coming event this section will be given over to the theme of "Energy Saving Regulations". It will illustrate which systems offer solutions in new builds and in renovations, meeting both needs and application requirements for single occupancy and multiple occupancy dwellings.

The air-conditioning forum will be accompanied by an extensive programme of lectures which will deal primarily with questions of energy efficiency and hygiene in air-conditioning and ventilation systems. A responsible approach to energy use represents a significant engineering challenge for the whole air-

conditioning and ventilation sector.

The most important answers are to be found in high-efficiency heat recovery systems, powerful, energy-efficient fans together with building management systems which use innovative monitoring, regulatory and control technologies to ensure optimum energy use for specific needs in the build

Professional maintenance is the best way to ensure that air-conditioning systems are operated without hygiene problems. With the VDI 6022 standard, the air-conditioning and ventilation sector — in close cooperation with hygiene experts and works doctors — has created a standard which lays down clear principles for hygienic planning, operation and maintenance of air-conditioning and ventilation equipment.

Contact:  
[www.ish.messefrankfurt.com](http://www.ish.messefrankfurt.com)







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## Air Movement & Air Quality

### new design software for VRF systems from 3D air sales

3D Air Sales (Ireland) has introduced Mitsubishi Heavy Industries' new "e-solution" software design program for VRF air conditioning systems. The start point gives a choice of working from a schedule of heat/cool loads, and selecting indoor units based on total or sensible heat criteria, or working from a floor layout, using a "drag & drop" operation to select indoor units from a menu, and placing them in the schematic pipework diagram. The schedule can be automatically converted to a schematic layout which can then be manipulated as required. Alternatively, if a quick budget scheme is all that is required, most of the data entry can be skipped and a quick layout and schedule produced.

Where the start point is the equipment schedule, the groups of indoor units are

placed on a "pallet" from which the drag and drop can be made on to the layout drawing. This ensures that no indoor units are forgotten or mislaid. The schematic layout can then be converted to a table schedule, with all the listed selection and performance data of each indoor unit detailed. Together with suggestions for automatic address numbers for indoor units, the occupants' name/room description can also be entered, for clarity.

When it comes to the outdoor unit, the designer can select it manually or automatically, provided temperature conditions and diversity factors have been previously entered on the default menu. The selection can be overridden if there is a requirement to extend the system at a later date.

In instances where a comparison is called for between 2-pipe and 3-pipe systems, the e-solution is the first and only programme which allows VRF design engineers to instantly convert 2-pipe systems into 3-pipe systems, and vice versa.

All 3-pipe systems include refrigerant distribution controllers (PFD boxes) which provide either hot gas or liquid refrigerant (for either heating or cooling) to the connected indoor unit. MHI distribution controllers have fewer connections than conventional systems as the common liquid pipe by-passes the PFD, reducing the number of pipe joints required on site. Details of the piping arrangements are automatically produced on the e-solution drawings. The possibilities for system combinations and amendments are infinite.

The MHI e-solution offers automatic pipe sizing and automatic calculations of capacity losses versus pipe lengths. The advanced software provides automatic selection of indoor units based on cooling/heating duties provided, and capacity adjustment depending on design ambient/room conditions. The software calculates additional refrigerant charge, and

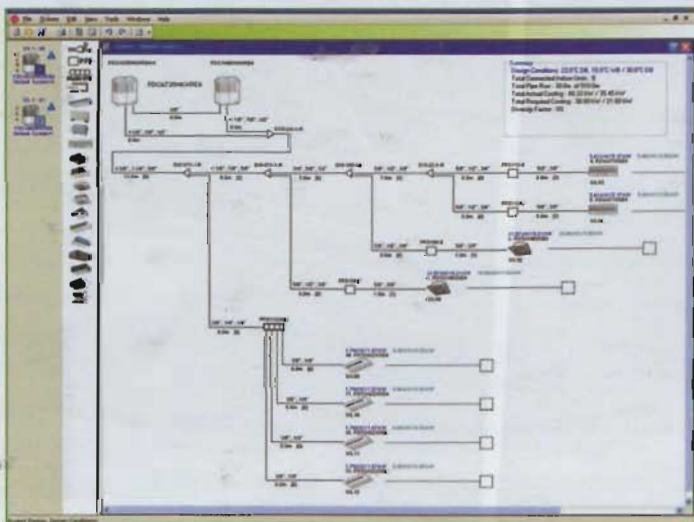
delivers a schedule of pipe kits, copper tube and insulation etc.

Schematic wiring diagrams are automatically produced and can be manipulated to suit certain control/wiring requirements. Remote controllers are included in the diagrams, plus the optional centralised and group controllers, and wiring for BMS interface of PC Windows control/monitoring options.

The equipment schedules and layout drawings can be converted to pdf, or exported to CAD, for transmission electronically. Another very useful feature of the programme is the library of specification sheets, sound data, and dimensioned drawings of all the selected indoor and outdoor units. These again can be automatically printed or exported, as required.

Technical information sheets in pdf format of all indoor and outdoor units, with dimensioned drawings, sound data, fan curves and performance data, are default selected, and can be attached, exported or printed.

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The schedule can be automatically converted to a schematic layout which can then be manipulated as required. Example shown is the 3-Pipe KXR schematic.



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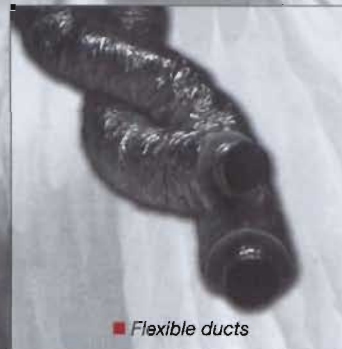
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## Air Movement & Air Quality

### Robur GAHP marks quantum leap forward in ac technology

The pressure to improve the energy efficiency of buildings and to reduce the emission of pollutants, especially CO<sub>2</sub>, has never been greater. Building services, and especially heating and cooling, account for significant energy usage and the manufacturers of such equipment have shown great leadership in devising new, innovative ways to tackle the challenge. Apart from subscribing to the letter of the law as designated by regulations such as the European Directive 2002/91/CE and the Kyoto Protocol, they have also embraced the spirit of these initiatives. The result is a vast number of technological breakthroughs which are contributing enormous energy savings and CO<sub>2</sub> reductions.

Robur's gas absorption heat pumps (GAHP) are a typical case in point. Distributed in Ireland by Tempair, these new units can provide heating and/or cooling from a single unit running on natural gas with peak heating efficiency higher than 150% (in comparison with heat energy consumer). With this new generation of heaters and heater chillers, developed and perfected by Robur, it becomes possible to:

- produce heating and air conditioning with a single gas-fuelled appliance with minimum electricity consumption when compared with traditional electrical systems;
- produce both hot and cold

water at the same time with a single gas burner;

- obtain extremely low fuel consumption in heating mode thanks to the recovery of energy from the air, water and ground.

For instance, the GAHP-W water/water absorption boiler/chiller, running on methane/LPG, simultaneously produces hot water heated to 65°C (water/water version) and chilled water to 3°C (ground/water version). It recovers heat energy from the air, water (lakes, rivers, the water table, etc) or from the ground which, added to the heat energy produced by the burner, is supplied to the heated environment at an efficiency in heating mode of over 150%. The most suitable applications are:

- plants/locations where simultaneous heat and cooling energy is required, such as manufacturing plants, or air conditioning of environments which require air conditioning and subsequent heating (such

as hotels, fitness centres, gymnasiums with swimming pools, etc.);

- heating systems in which it is possible to use renewable energy, such as water from lakes, rivers, the water table or the ground.

Main benefits are simultaneous production of hot and cold water with a total nominal efficiency of 237%; heating at nominal efficiency of up to 154%, if a renewable energy source is available (water from lakes, rivers, the water table or the ground); and a reduction of approximately 50% in the size and costs of the geothermic system compared with an electric heat pump.

Then there is the GAHP-A air/water absorption boiler which runs on methane/LPG. This is a gaseous-fuel heat pump for the production of hot water to 60°C. The most suitable applications of this unit are:

- hydronic heating systems,

in particular those designed for low temperatures, such as those with radiating panels on the floor or ceiling or with radiators of adequate dimensions, or air handling units;

- systems that require hot water up to 60°C for sanitary or manufacturing use, etc.

Finally there is the GAHP-AR water/air reversible absorption boiler/chiller running on methane/LPG which alternately produces hot water to 60°C and chilled water to 3°C, thanks to internal inversion of the thermodynamic cycle. These units are suitable for the heating and air conditioning of any building for industrial, commercial or residential use. Key benefits are:

- heating with efficiency of 140%, thanks to the recovery of heat energy from outside air;
- a single methane/LPG for heating or conditioning the air of any building.



Robur's GAHP marks a quantum leap forward in ac technology

"The arrival of GAHP technology marks a quantum leap forward in air conditioning technology", says Damien Parlour of Tempair, "and marks a new development in absorption equipment for which the future has yet to be written."

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Thermo Air and IMOFA are subsidiaries of the Honing Beheer Group and operate as internationally focused sales, distribution and manufacturing companies for air treatment and air movement products.

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email: [sales@thermoair.com](mailto:sales@thermoair.com)

IMOFA Ltd  
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Fax: 059 - 914 2174

email: [sales@thermoair.com](mailto:sales@thermoair.com)



## Air Movement &amp; Air Quality

## Marren Engineering — world-class HVAC solutions

Marren Engineering offers a complete turnkey HVAC solution, from design and supply right through to installation and maintenance. It is one of Ireland's leading specialists in the sector. Thanks to in-house engineering capabilities and highly-skilled site technicians, Marren Engineering is an expert in the HVAC sector, offering world class HVAC solutions. These are specifically tailored to suit each application and are cost-effective, energy-efficient, and environment-friendly.

There are three distinct operational centres within the company — Marren Contracting, Applied Engineering Products Sales and Marren Maintenance. What underpins the activity of each, and cements and strengthens their inter-trading, is adherence to a strict code of engineering excellence.

Underpinning the strength of this service is Marren Engineering's trading partnerships with some of the leading ac manufacturers in the world. These include:—

**McQuay** — Marren Sales is the officially-appointed distributor for McQuay in Ireland. The range of chillers covers all manner of applications offering higher efficiencies, greater performance, and lower noise emissions. These advantages are a result of the use of HFC 134a which, additionally, is less environmentally harmful. Capacities go from 8kW to 10mW. Products in the range include chillers, air handling units, fan coil units and water-sourced heat pumps.

**Mitsubishi Electric** — From the versatile M-Series and the easy-to-install Mr Slim range, through to the flexible City Multi models and energy-saving Lossnay heat exchange systems, there's a Mitsubishi Electric climate control system to suit every application. This includes large facilities, small offices, retail premises and homes.

**Toshiba** — The Toshiba air conditioning product range encompasses both split and variable refrigerant flow (VRF) systems which are energy efficient, installer-friendly, reliable and operate on non-

ozone depleting refrigerants. Market sectors catered for include residential, light commercial and major projects.

**Edpac** — Edpac is synonymous with quality and reliability in close control and air conditioning. The company has a long-established and very successful operation in Carrigaline, Co Cork and has been pioneering precision air conditioning since the late 1960s. Today it is one of the foremost electronic data processing ac companies in the world and offers a comprehensive range of products to suit the needs of close control (computer room) air conditioning and air handling products and solutions.

**Solid Air** — A leading specialist in the field of air distribution technology, Solid Air is renowned when it comes to internal climate management. However good the air treatment system may be in a building, the grilles and/or cooling convectors determine whether or not the internal climate is perceived as pleasant. Solid Air manufactures grilles and cooling convectors in all types, sizes and colours and so is the ideal complement to the other brand-leading names in Marren Engineering's portfolio.

Completing the picture is Marren Maintenance, the

after-sales and maintenance arm of the company. While engineering excellence is the underlying theme with all Marren Engineering operations, perhaps it is most evident in the services provided by Marren Maintenance. Maintenance, and especially preventative maintenance, is essential to ensure that the many problems associated with system downtime are eliminated. That said, the unexpected can also occur. In such instances Marren Maintenance has a rapid-response team who are on 24-hour standby.

**Combined Energy Solutions (CESenergy)** is an associate company of the Marren Engineering Group which designs, implements and manages combined heat and power (CHP) systems. It is a member of the Irish CHP Association, Cogen Europe, and is partnered with Cogent Energy Australia. It is also SEI grand-aided.

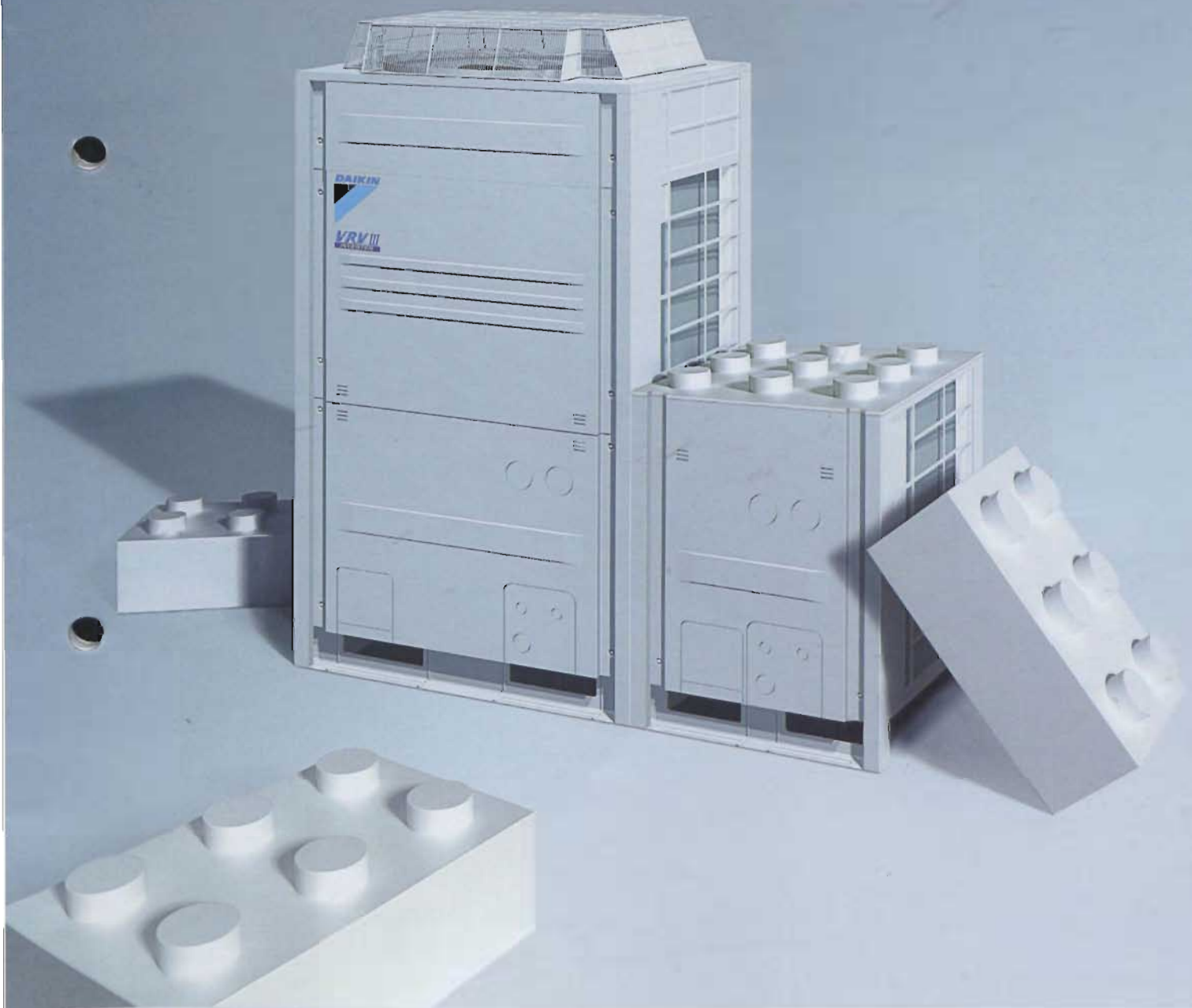
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Marren Engineering,  
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email: mark.dowling@marrenengineering.ie





# FLEXIBILITY IS EVERYTHING.

## VRV III



The new Daikin VRV III air conditioning system marks an important advance over existing systems, with many new innovative features and benefits for specifiers, installers and users • Greatest capacity (5 HP to 54 HP) • Maximum piping length extended to 165 m (outdoor unit to furthest indoor unit) • Total piping length extended to 1000 m • Lighter, modular units, easily transported by normal lift • Less refrigerant content than existing VRV systems • More energy efficient (high COP) on R-410A • Automatic refrigerant containment • Automatic charging • Back-up function • Powerful diagnostic tools • Centralized control systems with web access function • And much more besides...

For further details please contact Richard Smith: [smith.r@daikin-europe.com](mailto:smith.r@daikin-europe.com) or go to [www.daikin.ie](http://www.daikin.ie)

Published by ARROW@TU Dublin, 2007

**DAIKIN**  
AIR CONDITIONING





## Quality Service Delivered With Integrity

**G**T Phelan Ltd is the epitome of all that is best and desirable in a family business. It is extremely successful and has a core philosophy based on meticulous attention to detail, honesty, sincerity and a sense of fair play. These values were instilled in the business by the founder, the late Gerry Phelan, and have since been embraced and reinforced by his sons — Rodney, Derek and Kevin — who now run the company.

While Gerry was instrumental in establishing and spearheading the growth and development of the company in the early years, Rodney, Derek and Kevin were very much to the fore in the years immediately preceding Gerry's untimely death in 2002. Indeed, between them they now have something like 65 years service with GT Phelan Ltd. All are directors of the company and, while they work very closely on strategic matters, day-to-day responsibilities are reflected in their respective titles. Rodney is Managing Director, Derek is Sales & Marketing Director, and Kevin is Operations & Service Director.

The history of GT Phelan goes right back to when Gerry Phelan served his apprenticeship in HA O'Neil Ltd and, on completion, emigrated to the UK. He then went to Nigeria where he spent some time in mechanical engineering before returning to Ireland to join Heitons as a sales



Kevin, Rodney and Derek Phelan

established a small heating contractor business and it is from these humble beginnings that the market-leading GT Phelan Ltd of today emerged.

Despite fluctuations in the state of the economy as a whole and, more especially in building services, GT Phelan ploughed a steady profitable furrow, growing and developing year on year. However, it was the emergence of air conditioning in the early 1980s and the company's

appointment as Toshiba distributor for Ireland which led to the phenomenal success which followed. Indeed, Toshiba made a special presentation to GT Phelan Ltd earlier this month to mark the 25-year trading partnership.

This occasion coincided with the formal opening of the newly-developed Toshiba Training Centre for Europe, the Middle East and Africa which is located at the company's Leatherhead HQ in England. "The establishment of an up-to-date training centre is just one of several important training initiatives that will ensure Toshiba is again seen as one of the main players in training the industry", declared Toshiba Commercial Director David MacRae. "We expect hundreds of engineers to use this facility in the next few months and we are also working with forward-looking partner educational institutions to ensure that the facilities we have are fully utilised. We are also working on new CPD programmes".



Rodney Phelan and Derek Phelan receiving their certificate from David MacRae to celebrate the 25 year relationship between GT Phelan and Toshiba





TCUK directors Habib Hussain, Richard Ward and David MacRae cutting the ribbon at the official opening of the new training centre.

The new multi-functional training facility incorporates a showroom, seminar areas, and a hands-on working equipment area. A wide range of Toshiba air conditioning systems and controls is included. A controls wall has been constructed to enable training on the comprehensive controls options that are being used on the installed systems. There is also a classroom area with facilities for up to 40 attendees.

The facility is available for training programmes run by all Toshiba air conditioning companies throughout Europe, the Middle East and Africa, and by its distributors and contracting partners. Derek Phelan envisages that GT Phelan will avail of the facilities to provide a structured series of regular training and familiarisation programmes for its dedicated dealer network throughout the country.

"We are obviously very proud of our long association with Toshiba", says Derek Phelan, "but equally so of our own long-

standing trading relationship with building services. Along with one or two others, GT Phelan pioneered the introduction of air conditioning to Ireland and has retained its market-leading status by continuing to be innovative over the years.

"A major factor in our success is the quality of the product portfolio at our disposal, particularly from Toshiba. However, equally important is the quality of the support services we at GT Phelan provide. These include design assistance; product selection/specification advice; technical support; trouble-shooting; planned maintenance programmes; and emergency call-outs."

GT Phelan is every bit a service provider as much as a product supplier, the critical objective being to precisely identify the clients requirement and then to devise the most appropriate, efficient, and cost-effective solution. It is one of the few



independent companies left who were instrumental in introducing air conditioning to Ireland back in the early 1980s. Down through the last two decades in particular it has played a major role in developing and shaping what was originally an insignificant market segment into the multi-million euro business it represents today.

That said, GT Phelan is not content to sit back and bask in past successes and achievements. The focus is very much on the future, on bringing to the marketplace the innovative and technologically-advanced products continuously coming on stream.

The management team is dynamic and pro-active. It is not content to merely supply products as they become available, but actively engages with clients to identify their current and future needs. In essence, GT Phelan brings all the benefits and massive resources of its suppliers to bear when using its own considerable experience and expertise to devise tailor-made solutions for the conditions which prevail in Ireland.

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## Air Movement & Air Quality

### mitsubishi electric silver jubilee heralds new beginning

Rather than mark its silver jubilee by reflecting on its phenomenal success to date, Mitsubishi Electric Europe, Irish Branch, has unveiled a strategic development plan which is strongly focussed on the next 25 years.

Over the past 12 months the company has been preparing for the next stage of its development. "The key to success in the future will be based on the quality of service that companies can provide within its market", outlined Michael Sheehan, Divisional Manager. With this at the forefront of its strategy, Mitsubishi Electric Europe has invested heavily in the introduction of young, highly-qualified personnel which has re-energised all aspects of its operations.

The new sales team — which is headed by Paul Sexton as Sales Manager — includes three regional sales executives, assisted by an internal sales support team.

On the after sales support side Mitsubishi Electric has introduced two external Regional Support Engineers and an office-based engineer. This team is responsible for product support, customer engineers' training programmes, and all aspects of product after sales service.

The in-house team has also been expanded with key appointments in marketing and supply chain departments.

Mitsubishi Electric Europe continues to operate from its



Back Row: Dermot O'Brien with Daragh O'Neill, Paul Sexton, Paul Turley, Paul Keyes, Martin O'Brien, Morgan Treacy and Andy Keegan. Front Row: Padraig Blake with Orlaith Gillen, Margaret Deering and Jorge Arlandis

headquarters at Westgate Business Park in Ballymount, Dublin 12. As part of its restructuring it has also made strategic changes to its premises to assist in the improved service it will provide to customers. The improvements include the reorganisation of the trading floor to help better communication between staff and customers. There is also a new conference facility and additional meeting room to accommodate "face-to-face" meetings.

A new engineering training facility has also been constructed to improve the quality of the training given to engineers and sales people, and to help them have a better understanding of the technology available from Mitsubishi Electric.

With the continued research into new markets and rapid development of new products for the European market in both the domestic and commercial sectors, these

changes provide the company with the ideal facility to test, train and demonstrate product.

Plans are also underway to further improve the warehousing and logistics. Mitsubishi Electric stocks all the products for the Irish market at its facility in Ballymount and distributes the product from there on a daily basis. A new dispatch/trade counter will be opened shortly to further enhance customer support functions within the organisation.

Mitsubishi Electric Ireland's air conditioning business continues to expand and is based on its three key product sectors: — Mr Slim Room and Package air conditioners; — City Multi Variable refrigerant flow systems; — Lossnay ventilation heat exchanger system.

All the products have experienced great success in Ireland due the innovative

design and the continuous development strategy adapted within all its manufacturing facilities worldwide to improve the COP and the overall performance of the products.

"Critical going forward is to be a key contributor to the reduction of CO2 emissions by providing a product portfolio within the HVAC industry that will give an economical solution, both in capital and running costs", stated Paul Sexton.

Air conditioning continues to be the primary division within Mitsubishi Electric in Ireland. Over the years air conditioning professionals all over the country have insisted on the leading-edge technology, and unrivalled choice, offered by Mitsubishi Electric Air conditioning systems who are the market-leading brand in its sector. The product range caters for office developments, medical centres, hotels and retail premises.

As the foregoing illustrates, in marking the occasion of its silver anniversary, Mitsubishi Electric Ireland is firmly set on strengthening, consolidating and growing its market-leading status over the next 25 years.

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## Air Movement & Air Quality

### Thermoair & IMOFA — indoor climate made perfect

Thermo Air Ireland Ltd is a subsidiary of the Dutch-based Thermo Air International, the renowned specialist in the design and production of innovative air heating, air handling and environmental technology equipment. The parent company was established in 1947 and now has strategic representation in approximately 20 countries throughout Europe.

Thermo Air Ireland was set up in 1980, originally with approximately 80% of production going to the parent company and 20% directly into the Irish market. Over the years that has gradually changed and is now at the point where the home market accounts for 50% plus of the Irish company's output.

In 1987 a sister company called IMOFA was established to specialise in the production of fans and ventilation equipment, as well as fan motors and controls. This has since become a widely-recognised and highly-respected supplier of air movement products in both the European and Asian markets. The products produced are typically found



in all air conditioners, air handling units and indeed in every system that requires air to be moved. A large stock of components, together with a flexible production system, ensures delivery on time every time.

The Thermo Air portfolio comprises four primary product groups, air heating, fans, ventilation and air treatment. Brief details of each are as follows:—

**Air Handling** — Air curtains; reheat coils; heat exchangers; electrical heating; heat recovery units; heat circulation units; direct-fired air heaters; indirect-fired air heaters; domestic heating and ventilation; heating and cooling systems for suspended ceilings; unit heaters — both gas and low-pressure hot water.

**Fans** — Direct-driven centrifugal fans; high-performance fans; v-belt driven centrifugal fans; direct-driven axial fans; electric motors.

**Ventilation** — Roof intake units; intake hoods; roof exhaust units; fan boxes.

**Air Treatment** — Compact air treatment units; modular air treatment units; air mixing units.

Both, Thermo Air and IMOFA, are part of the Honing Beheer Group and operate out of purpose-designed premises in Carlow. The objective of both companies is to design and manufacture products that contribute to the improvement of the internal living environment. Typical characteristics of the current portfolio are innovation, quality, energy-efficiency, and standard/regulation compliance.

To that end the Carlow complex state-of-the-art production facilities; ISO-certified quality control procedures; advanced testing mechanisms; and a team of highly-qualified design and production personnel who are

totally committed to the ideal of delivering product excellence across the entire range.

While extremely innovative, high-performing and cost-effective, Thermo Air and IMOFA are not about products alone. Equally important is ensuring the correct specification and installation of those products. Hence the emphasis on providing technical engineering support to all clients.



Meeting delivery schedules is becoming increasingly more critical with today's trading environment calling for greater flexibility and an ability to respond to last-minute changes. Thermo Air and IMOFA are perfectly geared to provide total customer satisfaction because of the large stock of essential components held and the ease with which production runs can be adapted.

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email: sales@thermoair.com





# MARREN

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At Marren Engineering we focus on the importance of providing an overall engineering solution in the mechanical and electrical elements of the building industry. With in-house engineering and CAD facilities, our highly skilled trades teams can produce the most flexible, innovative and turnkey solutions.

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# Check out the benefits!

At last, a unique control system that provides flexible, energy saving air conditioning that's perfect for hoteliers everywhere!

The Mitsubishi Electric Programmable Logic Controller\*1 (PLC) connects to our G50 control systems to provide maximum control for hotels everywhere. By simply programming the indoor air conditioning units to work in conjunction with existing key card systems, the PLC achieves the highest level of control.

When the hotel room is:

- > **Occupied with key card inserted.** The air conditioning is initially set to 'Auto' mode and 21°C\*2. From this point onwards the guests then have full control.
- > **Occupied with the key card inserted and a window open.** When using the optional window sensor, the air conditioning is automatically switched off to save maximum energy.
- > **Unoccupied with no key card inserted.** The air conditioning is automatically set to 'Night Set Back' mode which maintains the room temperature between 16°C\*2 and 26°C\*2.

Using the PLC with our advanced control systems (G50 or Baby G50), enables all guest rooms to be easily monitored and/or controlled from a central point in the hotel, ensuring utmost comfort and maximum efficiency throughout.

It also:

- **Ensures maximum comfort and efficiency** by preventing guest rooms being too hot or too cold prior to occupation.
- > **Saves energy** by avoiding guests inadvertently setting the wrong mode (ie. Heating/Cooling instead of Auto).

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\*1 No dedicated computer is required  
\*2 Setpoint and temperatures are configurable





## Air Movement & Air Quality

### daikin VRViii — energy saving ac solutions for medium to large commercial buildings

VRV air conditioning, pioneered by Daikin Industries in Japan, was introduced to Europe in 1987 and rapidly achieved a position of dominance within the industry. Since then, Daikin has developed its operational scope and performance out of all recognition to its original format.

The next great leap forward came with the advent of inverter capacity control, which increased system flexibility and efficiency. In 2003, air conditioning technology advanced yet again with the introduction of VRVII, the world's first R-410A operated system of this type and a considerable advance over earlier systems. Until 2005, all VRV systems had been air-cooled but the introduction of the water-cooled VRV-WiII extended the application potential by leaps and bounds. Even the advent of the water-cooled modes, however, does not bring the story up to date. More recently, Daikin harnessed advanced design technology and introduced its third-generation VRViii, incorporating all the best features of VRVII, plus a number of innovative design, installation and maintenance refinements.

System capacity, for example, is 12.5% greater at 54 HP,

delivering a maximum of 147 kW cooling and 170 kW heating per outdoor unit. Up to 64 indoor units can be connected to each system, representing an increase of 33%. This much-improved performance is combined with an increase in total system piping length from 510m to 1000m, and higher vertical separation between outdoor and indoor units, from 50m to 90m.

User requirements can be matched precisely in terms of energy efficiency or minimum footprint. The connection ratio of 130% makes it easier to combat localised heat gains during morning or afternoon sunshine, when cooling is switched from one side of the building to the other. Flexibility is enhanced still further by a 26.5% increase in external static pressure, providing more options for concealed or indoor installation of the condensing units.

Perhaps the most interesting and environmentally-conscious innovation, however, is VRViii's ability to control and contain the amount of refrigerant charge applied during commissioning. Operating a button on the condensing unit after a refrigerant cylinder has been connected to the charging port initiates charging, which ceases automatically as soon

as the appropriate volume of refrigerant has been delivered. Refrigerant containment is also promoted by the use of brazed joints before the shut-off valves and brazed pressure sensors in place of flared and flanged connections on the refrigerant circuit.

Operating noise is another important environmental issue and VRViii's new low-noise, high-efficiency scroll compressor and improved insulation have achieved an overall reduction in operating sound. At night, or during transitional periods, noise levels can be reduced still further in two steps, to 50dB(A) and 45dB(A).

VRViii is supported by a full range of indoor units and precise system control is ensured by its compatibility with the Daikin suite of advanced air conditioning monitoring and control systems (Intelligent Touch Controller, Intelligent Manager, BACnet Gateway and LONWorksCompatible Gateway).

"So, where does VRV

development go from here? Watch this space — there will be many more innovative developments to come", concludes Richard Smith of Daikin Europe NV (Ireland Office).

Contact: Richard Smith, Daikin Europe (Ireland Office).

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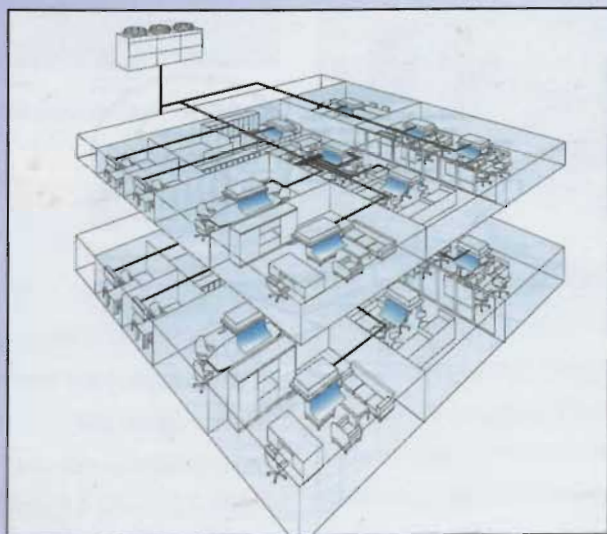


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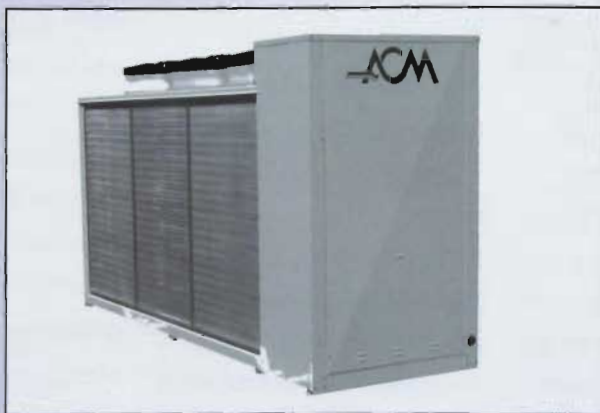
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## Air Movement & Air Quality

### aquaforce — increased efficiency & reduced emissions

Aquaforce from Carrier is an advanced air-cooled liquid chiller range specifically designed to meet current and future market requirements in respect of energy-performance efficiencies and CO<sub>2</sub> emissions. It is available in two versions — one offering superior energy efficiency coupled with extremely low noise levels, and the other catering for situations where stringent energy efficiency and reduced operating costs are the prime consideration. In all there are a total of 20 models to choose from, with outputs from 270kW through to 1700kW.

Aquaforce has a number of innovative features, such as the MCHX heat exchanger. Unlike conventional coils, this is made entirely of aluminium, the one-metal concept eliminating the galvanic currents that are generated when different metals touch in conventional coils. Exhaustive comparative tests, including the salt mist and ammonium sulphate test, demonstrate that MCHX heat exchangers offer three and a half times higher corrosion-resistance than copper/aluminium coils.

Additionally, because of its micro-channels, the MCHX heat exchanger ensures



improved refrigerant circulation. It permits a 30% reduction in the refrigerant charge for the chiller, and increased performance.

Carrier has also developed the DX Free Cooling system for buildings that require year-round cooling, even in the coldest of regions. When the outside temperature falls below a threshold value the DX Free Cooling system kicks in to provide significant energy savings.

The system uses the principle of natural migration of a gas from the evaporator to the condenser. A cooling-mode pump micro-pump ensures the continuity of the cycle and allows the compressors to switch off. Only the fans and the micro-pump operate.

With an average energy

efficiency rating (EER) of 3.15, Aquaforce is at the top of the Eurovent energy efficiency classification — Class A. Full load operation is only required one percent of the machine operating time.

Extremely low noise levels of 94 dB(A) is another benefit. To achieve these results Aquaforce has reduced the noise levels of all components — fan, compressor and condenser. The fan is of the 4th generation Flying Bird type which is made of composite materials. Its aerodynamic shroud displaces the air without turbulence and generates a sound spectrum without irritating low-frequency peaks.

The screw compressor includes a discharge damper located inside the oil separator to absorb

refrigerant pulsations. It is also equipped with flexible connections on the suction piping to prevent noise transmission. The compressors are enclosed by noise-absorbing casings to limit sound transmission further.

Installation and maintenance is also very user-friendly.

Aquaforce can be installed simply and quickly, thanks to it being an integrated, hydronic, module. The complete system is pre-tested at the factory and arrives on site immediately operational. For maintenance the MCHX coils can be cleaned with a high-pressure water jet while the compressors are mounted on slide rails to facilitate easy on-site technical intervention.

The same user-friendly features apply to operator interface with Aquaforce. A large-format touch-screen gives easy access to all information and controls with clear texts presented on screen to access all operating parameters. Up to eight screens can be personalised.

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## Air Movement & Air Quality

### air conditioning and part L — what you need to know!



Climate change and carbon footprint are two phrases currently on everybody's lips. Every day we are subjected to a barrage of media hype — be it on TV, radio or in the newspapers — informing us of the horrifying implications if we do not take drastic action in the way we currently utilise energy. Are these programs naysayer's, or is this a real issue? Will this head the same way as Year 2000 compliance, or will we increasingly see records of air-temperatures being broken on and again?, asks Vincent Mahony, Sanyo Airconditioners Ireland.

Everyone agrees that dramatic climate change is being experienced right across the world. Moreover, most commentators agree that the ever-increasing concentration of CO<sub>2</sub> in the atmosphere is a contributory factor. The question is what is causing this increase in CO<sub>2</sub> concentration?

Most modern commercial buildings require some form of

heating and air-conditioning to achieve comfortable levels of thermal comfort for the occupants. This is because heat emissions from PCs, high levels of glazing, and high-occupancy factors have meant increases of almost 100% in building heat-loads within the past 40 years. The heating and the air conditioning systems required to deal with this problem account for a large percentage of energy use in these buildings. It is against this background that the Building Regulations Technical Guidance Document, Part L, was amended last year to include new guidelines on the conservation of fuel and energy.

So, what implications does this have for air-conditioning? The main objective of Part L is to improve energy performance by limiting the use of fossil fuel energy and related CO<sub>2</sub> emissions arising from the operation of buildings while, at the same time, ensuring that occupants can achieve adequate levels of lighting and thermal comfort.

The challenge facing the building services sector is to devise products and systems which can do just that. For the most part the industry is rising to this challenge, using a variety of means to tackle the problem. These include more

energy-efficient air conditioning systems, improved U-values and reduced solar-gain, lighting-gains etc.

It is also important not to oversize ac systems and to utilise diversity where applicable. Other requirements include a proposal that ac systems should be subject to regular inspection; that buildings over 1000 sq m must consider alternative energy solutions; and that public buildings of this scale must display a valid Building Energy Rating (BER) Certificate. This could have a direct effect on how much a developer can charge per sq m of space.

Most people engaged in building services are now beginning to embrace, and practice, the spirit and idealism of much of the foregoing. However, it is being done in a disjointed manner with some doing it better than others and certain market segments being more diligent than others. We at Sanyo believe that the industry needs to develop a more concerted approach to the problem so that, together — system specifiers, contractors and product suppliers — can exercise a more cohesive, collective responsibility to the design and fit-out of buildings. This

will have a knock-on affect on how efficiently buildings utilise the energy required to achieve adequate lighting levels and room temperature.

In an effort to foster this all-embracing, collective responsibility, Sanyo Airconditioners Ireland will host a nationwide series of seminars over the coming months based specifically on Building Regulations Technical Guidance Document, Part L. The idea is to outline, as Sanyo interpret it, the requirements and implications of Part L but, even more importantly, to stimulate discussion and provide a forum where different views can be exchanged. Details of the seminars will be published in *bs news* next month.

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[www.sanyoaircon.com](http://www.sanyoaircon.com)





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# Our HVAC Needs

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## Quality & Choice



# Air Movement & Air Quality

## york symphony chillers — 'super efficient, super quiet'

Yorks' new Symphony chiller range is claimed to be the world's first low-sound, air-cooled, variable speed drive, screw chiller. The addition of variable speed drive technology provides:—

- Class leading low ambient and low load efficiencies;
- Soft starting of compressors with starting current never about 100% FLA;
- Power factor correction to 0.95 at full and part loadings;
- Reduced compressor start-to-start times allowing lower system buffer volume.

There are four levels of operating efficiency — standard, standard with optimised ESEER, high efficiency and high efficiency with optimised ESEER. The incorporation of variable speed compressor technology, electronic expansion valves and optimised part-load control results in Class A full-load energy efficiency (EER) as high as 3.2 and European Seasonal Energy Efficiency Ratios (ESEER) that exceed 4.0. These high efficiencies, together with high 0.95 power factor operating conditions, result in economical operating

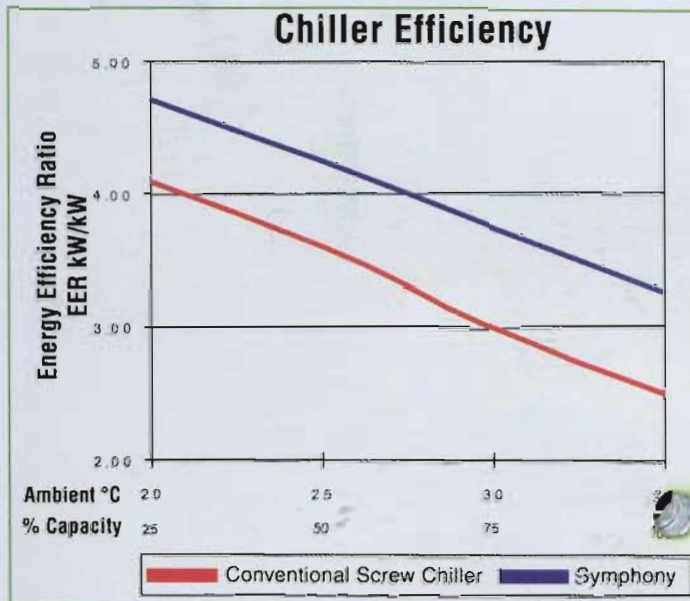
costs by reducing wattless energy usage.

There are sound-reduction options to suit most environments with each efficiency level having a selection of three acoustic options:—

- Standard sound level which is generally applicable for daytime operation in city centre locations;
- Reduced sound level for daytime operation where background noise is lower;
- Low sound level for night and day operation near residential areas.

The heart of the Symphony chiller is the York MTS semi-hermetic screw compressor. The following design features provide increased reliability and low maintenance costs:—

- Each compressor motor has a dedicated inverter to match motor speed to cooling demand. There is no slide valve, return spring or control solenoid. Therefore, this simple dual-screw rotor compressor has 50% less moving parts than conventional screw compressors;
- Symphony controls monitor compressor runtime and start-ups and



automatically switch the lead and lag compressors to balance operating hours;

- Thanks to the soft-start characteristics of variable speed drive, the starting current never exceeds full load amps and any compressor starting stress is eliminated.

Another advantage of low starting current is that standby generators are smaller than those required for conventional screw chillers.

Fuzzy logic control makes decisions to load or unload according to the error from setpoint and the rate of change of chilled liquid temperature. It ensures that the chiller always operates at a stable condition.

Smart anticipatory control determines how many compressors need to start to satisfy the current cooling load. It keeps as many compressors as possible on line and reduces the speed in an effort to use the entire

evaporator tube surface to ensure optimum efficiency at all times and in all conditions.

Capacity control is smooth and step-less, providing maximum capacity control of 10% on two compressor models and 7.5% on three compressor models. Load limiting controls have been included to ensure that, if maximum operating conditions are exceeded, the chiller continues to operate to maintain performance within safety limits.

For additional safety and easy installation, Symphony is supplied as standard with a single-point, lockable circuit breaker.

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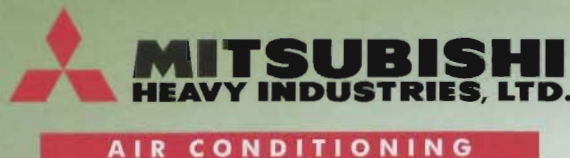
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## Harmon — multiple choice for optimum solutions

Harmon Air Conditioning is a long-established supplier to the AC sector with a history stretching back many years. Throughout that time it has provided all manner of ac solutions for an extensive range of projects and applications, a key strength being the large portfolio of world-leading brands it represents. Brief details of scope and diversity of the solutions offered are as follows:—

### *Mitsubishi Electric City Multi*

—City Multi offers a simple and flexible solution where there is a demand for changeover capability between heating and cooling. The efficiency of Citi Multi — and in particular the R410A YGM Series — is second to none and offers a substantial increase in energy efficiency with corresponding EER/COP ratings.

With a wide range of 60 indoor units, up to 32 (depending on the capacity available) can be connected to a single City Multi Y Series outdoor unit. Models in this range include 12hp and 14hp options, as well as Mitsubishi Electric's "Replace Multi" system which enables the replacement of existing VRF systems while utilising existing pipework.

*Clima System* — This range is designed specifically for close control air conditioning where the almost exclusive handling of sensible heat loads is a fundamental requirement. Typical applications are computer rooms, digital telephone exchanges, switch rooms, weather stations, medical laboratories, and CAT and MR scanners.

The series — which can be either upflow or downflow — offers a large range of accessories and variations in design, allowing for maximum flexibility in the use of the units. Noise level is maintained at a low level by the use of scroll compressors, size of the fans used, and the face area of the coils.

Units incorporate microprocessor control for single-unit management system, offering the following characteristics:—

- room air temperature control through the activities of the compressor or the electric heater or the modulation of the 3-way valve;
- supply air temperature limit;
- management of all alarm conditions;
- remote start-stop;
- general alarm;
- password.

*ACM Kalte Klima* — Over the years ACM has gained an international reputation for the quality, reliability and efficiency of its air conditioner, chiller and roof-top ranges. All incorporate innovative features and advanced technology, a typical example being the company's Duo Series.

Duo is a complete heating and cooling plant that, in its maximum configuration, is a

fully-packaged system with liquid cooling system, gas-fired heating system, pump station with storage tank, and air handling system. The entire plant is controlled by a single microprocessor that coordinates all the various functions.

Other advantages of using Duo include the possibility of recuperating areas that would not normally have been utilised as a separate heating plant, and the speed and ease with which the entire system can be installed.

Overall, the ACM Kalte Klima range spans capacities from 10kW to over 1,000kW and comprises — air or water cooled liquid chillers; reversible heat pumps; condensing units; evaporating units; liquid chillers with "free-cooling" capability.

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## Ig's multi v, multi v plus & multi v space

Core Air Conditioning has introduced LG's new VRF range which incorporates stylish indoor units featuring an advanced filtering system, ease and flexibility of installation, high efficiency and reliability, and low noise emissions. Designed with internal installation in mind, it may also be installed outdoors.

The range encompasses Multi V, Multi V Plus and Multi V Space, each with a specific set of features suited to any commercial site such as shopping centres, offices, hotels and apartment blocks. All three systems can power up to 40 indoor units and can be controlled via the internet, a PC, a deluxe or simple controller. The Multi V range is the result of a two-year intensive testing programme that achieves convenience of installation and a zero rate of error.

Newest to the range is Multi V Space, an energy-efficient, space-saving and quiet VRF unit. It is suited to any site where optimum performance is needed to deliver summer cooling and winter warmth. This unit, which can also be sited indoors, is entirely inverter driven — both compressors and fan motors. It is also extremely quiet in operation, up to 10dB quieter than equivalent capacity conventional systems.

Multi V Space systems are available in either 5hp or 10hp in heat pump option only and can be sited inside a cupboard or a plant room with the fans facing outwards on a louvered wall or exterior grille. The sirocco fans reject the heat away from the outdoor unit to the left and the right which prevents short cycling between the air off and air on. The minimum installation space requirements are 900mm front access (service space), the rear of the unit can be fitted flush against a louvered wall, or ducting can be fitted if required (ESP can be increased if necessary up to 120 Pascals). Side access is not required so the units can be placed alongside each other.

The Multi V VRF system outdoor unit features one inverter-driven and one high-efficiency compressor, with "Gold Fin" on the condensing coils for durability; uniform and effective distribution of

refrigerant; low noise/high static pressure outdoor fan; the PCB is encapsulated in a urethane mould for reliability and security; high-efficiency inverter control; two comp cycle for uniformity in oil and pressure; LEV and sub-cooling system and R410a refrigerant gas. There is also non-polar communication between the outdoor and indoor units, in addition to an auto-restart facility. Multi V has great flexibility in that the longest pipe run can be up to 170 metres and a maximum vertical height of 50 metres. The self-diagnostic programme means that, during the installation, commissioning and operation phases, any problem can be diagnosed easily and conveniently using a PC or notebook.

Multi V Plus is a two-pipe VRF system following the same design manufacturing template. It is especially suited to high-rise and large buildings as it can handle pipe run lengths of up to 150metres and 50metres elevation. The two-pipe system is available from 5hp to 40hp and can power up to 40 indoor units including Art Cool, cassettes, ducted wall mounts etc. It can also be controlled via the internet, a PC, a deluxe or simple controller.

Another version of Multi V Plus is a 3 pipe heat recovery system which provides simultaneous heating and cooling and, when running at

an optimum balance, the amount of externally supplied energy needed to drive the system is reduced in comparison with more conventional systems.

Completing the VRF range is the Universal Synchro outdoor unit which is specifically designed for applications where open space is a major feature. It is easy to install, highly efficient and produces hardly any noise because of its use of MPS technology. There are three Synchro variants — Duo, Trio and Quartet — and they take their names from the number of branch pipes associated with them, 2, 3 and 4. The branch pipes used are unique as they offer a level of flexibility not previously available in this type of joint, making them easier to work with. Their design also has the advantage of maintaining uniform refrigerant distribution.

One of the key features is MPS Inverter control — this allows up to 70% in energy savings. This combination of a highly efficient constant speed compressor and a DC inverter compressor makes it one of the most energy efficient — and economical — methods of operating a multi-split air conditioning system.

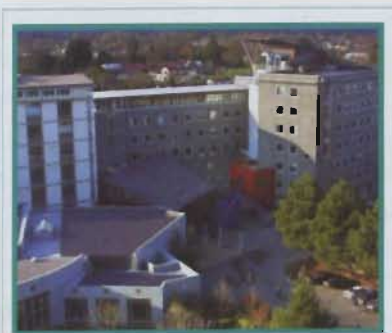
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Tel: 01 - 409 8912;  
email: info@coreac.com



The Multi V Space VRF unit



PATRICIA CRISP



Property and facilities management is nothing new to the building services sector. Over the last 20 years or so it has emerged as a stand-alone, dedicated market segment with individuals and companies specialising in the area. Indeed, an industry representative body — the Irish Property & Facilities Management Association (IPFMA) — was formed as far back as 1989 under the auspices of The Society of Chartered Surveyors.

"The duties and responsibilities of property and facilities managers are extensive", says Patricia Crisp, IPFMA Chairman. "They cover everything from property strategy, space management and communications infrastructure, to building maintenance, security administration and contracts management. It is a dynamic, constantly-evolving profession. Key influencing factors are legislative requirements dealing with health and safety and client's growing awareness of the need for genuine sustainability and energy efficiency in respect of buildings.

"We are a self-regulating body with a code of professional conduct and ethical standards to which all members, and affiliates, must adhere. We are governed by an elected council which meets at monthly intervals and reviews, through its subcommittees, relevant developments in legislation; health and safety; education policy; environment; leases; security; maintenance technology; and service charges."

As the foregoing clearly illustrates, the role of property and facilities managers is diverse and all-embracing. It is not a reactive role but rather a pro-active function requiring a very disciplined and knowledgeable approach to everything from health and safety issues through to planned maintenance, energy saving, waste management and compliance with a wide number of statutory and regulatory requirements.

While facilities management is concerned with managing an organisation's non-core activities in line with its principal objectives, it also requires a broad and thorough understanding of the business operation. The primary objective of the facilities manager's role is planning for the future business requirements and organisational change, together with the allocation of resources in a competitive and demanding business environment. In this context it is clear that property and facilities managers can have a massive influence on a company's bottom line. In essence, they are as much business managers as they are property and facilities managers.

This is a challenge Patricia Crisp has first-hand experience of. Apart from her role as IPFMA Chairman, she comes face to face with this reality every day in her position with Ganly Walters, one of Ireland's leading property consultants. Apart from commercial property services, it also specialises in fine country property, quality Dublin property, and overseas residential property. In addition,



PATRICIA CRISP

"IPFMA links all those involved in this fast-growing profession by providing for the education, training and professional development of its 400 plus members. The objective is to develop and maintain the highest levels of skill and professional conduct in all areas relating to property and facilities management."



Patricia Crisp

Ganly Walters provides commercial property services to owners and occupiers of industrial, office, retail, leisure and development land, as well as town planning and development consultancy.

Ganly Walters also offers a complete range of property investment services. Its affiliation with King Sturge — one of the largest independent property consultants in Europe — provides worldwide access in the commercial property sector.

That said, Patricia's term as Chairman has seen a major development on the home front and one which her international experience will undoubtedly be of significant value in dealing with. Because of the massive growth in multi-unit developments like apartment complexes in recent years, we have seen a proliferation of management companies who own and control the common areas of such developments. These are charged with providing services such as insurance, security, building maintenance, etc to these complexes.

While nothing new in itself, the sheer number of such management companies — and Ireland's relative

inexperience in dealing with such large-scale developments — was bound to create problems. Complaints to the Office of the Director of Corporate Enforcement (ODCE) has led to the publication of a Consultation Paper, giving general guidance on the governance of apartment developments and the rights and obligations from a company law perspective of the directors and members of the associated management companies. This is a matter of critical importance to IPFMA members and the Association is currently in the process of preparing its own position paper in response to the ODCE Consultation Paper.

As the representative body for this sector — and given the broad range of services provided by way of education programmes, information exchange, operating codes of practice, etc — professionals operating in the field and not already in the IPFMA should consider joining.

While dynamic and exciting, property and facilities management has also become more complex. Membership of a strong representative body — and adherence to its code of practice — is what will secure the sector's future.



## AECI Secures Understanding with PSA



Since the Private Security Authority (PSA) was established in 2004, electrical contractors have found it increasingly difficult to identify precisely where their role and responsibility with regard to security installations begins and ends. The situation became even more complicated once the PSA started to regulate and issue licenses to those operating in the sector. As and from 1 January this year, all contractors engaged in the installation, maintenance, servicing or repair of intruder alarm systems (with the exception of persons engaged solely in the wiring of intruder alarm systems) must obtain an installer (intruder alarm) license from the PSA.

It is against this background that the Association of Electrical Contractors of Ireland (AECI) formed a PSA sub-committee — comprising Mattie Ryan, Brian Flanagan and Denis Judge — to meet with the PSA to clarify the situation with regard to a host of queries and areas of concern.

Among the issues raised were:

- What is deemed electrical work and what is security work?
- The provision of power supplies for security/access/monitoring equipment;
- Installation of trunking/ tray/basket and containment;
- First fixing of alarm/access control/cctv etc cabling;
- Security lighting/emergency lighting/fire alarms/intercoms.

Following a discussion on the

importance of clear and definite answers on the above required by AECI members, the PSA requested a further meeting to enable them to fully clarify their response. At the second meeting between the AECI and the PSA a lot of misunderstanding was firmly laid to rest and a number of clearly-defined definitions started to emerge.

The AECI has also worked with the PSA on recommending defined positions where electrical contract work stops, and PSA license activity starts. When a document is brought in to law, different interpretations will always emerge as these documents are normally prepared by people who are not familiar with the subject matter. The AECI's position is that only a competent person should be allowed to deal with the power requirements to an intruder alarm system, where mains voltage is being applied and as covered by ETCI rules. However, it does not consider this to be a licensable activity and, as such, it is outside of their remit.

Other matters raised — and agreements arrived at — are as follows:—

- The power supply after the spur outlet is 220 volts and, under ETCI Wiring Rules, should only be handled by a qualified electrician;
- Change to "Power Supplies after the Control Panel": This element of work should be completed to ETCI rules. However, the AECI member's remit extends only to licensable activities and it does not consider the installation of the conduits and trunking to be licensable;
- First fixing or pre-wiring of intruder alarm systems (IAS): First fixing



of cabling for intruder alarm systems, cctv and access control may be installed by a non- licensee but shall only be installed by a competent person.

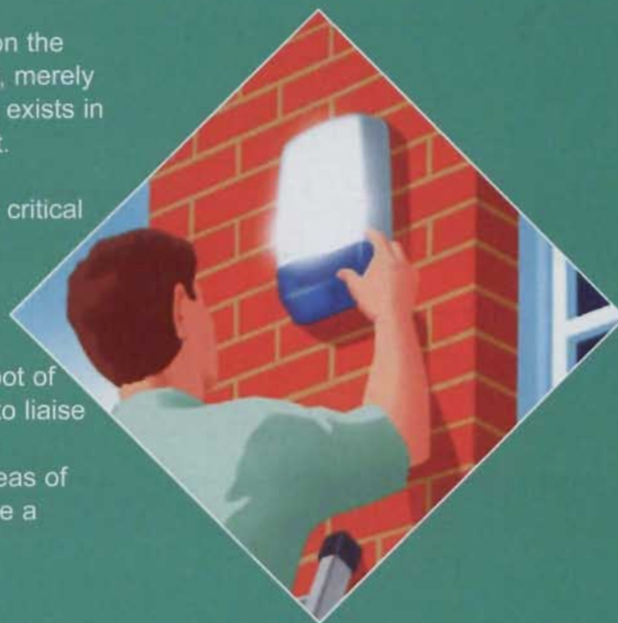
The second fixing of any of the various component elements for intruder alarm systems, cctv and access control can only be carried out by a holder of a valid installer (intruder alarm) license;

- Security lighting: Security lighting is not a licensable activity.

However, intruder alarm and access control systems are licensable activities where they warn, monitor or record. No distinction has been drawn in the current legislation or regulations

as to whether they provide these functions on the date of installation or not, merely whether this functionality exists in a given installation or not.

Given the high number and critical importance of the issues involved, the meetings to date between the PSA and the AECl have proved extremely productive. On foot of that the AECl will continue to liaise with the PSA with a view to identifying and resolving areas of concern *before* they become a problem.



## New Format for AECl Trade Show

The AECl has devised a new, more business-like, formula for its Annual Conference & Trade Show. Traditionally, the conference and trade show was accompanied by a busy social programme, including golf and a formal dinner. However, that formula has now been refined, the intention being to hold a dedicated social event later in the year at a date which has yet to be announced.

In the meantime, the Trade Show for 2007 will be held on Saturday, 19 May next, in the Radisson Hotel, Athlone. The location is easy to access from all parts of the country and delegates will also benefit from the 11am start and 4pm finish. Early delegate booking is advisable.

This year will see greater emphasis on the trade show with as many as 55 exhibitors — including manufacturers, distributors, wholesalers and service providers — presenting a vast array of products to a captive audience. As we go to press there are a limited number of stands remaining but those interested in participating should contact the AECl as a matter of urgency.

## AECl Membership Benefits

Among the many added-value benefits of AECl membership are the very tangible savings and discounts which can be availed of across a whole range of business-related services. These include:—

**Insurance** — Arachas provides a wide choice of insurance solutions specifically negotiated for AECl members. Included are life, pension and investment; employer's liability, public/product liability; goods in transit cover; private motor insurance; commercial motor insurance; household insurance.

**Computers (hardware and software)** — Savings of between 15% and 35% are available to AECl members from Dell Computers. Items and services included are computers; laptops; printers; business support; software packages; upgrades; etc; and insurance cover for Dell hardware.

**Accounts & Payroll** — Savings of up to 20% are available on all accounts and payroll packages from Big Red Book;

**Safety equipment** — Savings of up to 25% are available from Bunzl on workwear kits, screen printing and company logos.

Contact: Gillian Kohlmann, AECl. Tel: 01 - 288 6499;  
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IN ASSOCIATION WITH DUBLIN INSTITUTE OF TECHNOLOGY  
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## Sustainable Design in Building Services – Applications in Ireland



in association with

**Clontarf Castle, Dublin 3, Thursday, 22nd March 2007**

**Registration: 8.00 am - 8.45 am Conference: 8.45 am - 5.15pm**



### Conference Schedule

Time	Title	Speaker	Chairperson
8.00	Registration and Coffee		
8.45	Opening address	Minister Dick Roche	Brian Geraghty, Chairman CIBSE ROI
9.00	Keynote address	James Pike, President RIAI	Brian Geraghty, Chairman CIBSE ROI
9.25	Sustainable Communities - Dundalk Case Study	Declan Meally, SEI	Brian Geraghty, Chairman CIBSE ROI
9.50	OPW building energy data	Conor Clarke, OPW	Brian Geraghty, Chairman CIBSE ROI
10.15	Q & A		Brian Geraghty, Chairman CIBSE ROI
10.30	Coffee		
11.00	Low Energy School Design	John Dolan, DOES	David Taylor, Chief Executive SEI
11.20	Low Energy Maritime College	David Brennan, BDP	David Taylor, Chief Executive SEI
11.40	Energy Saving Applications in Retail Sector - Tesco	Michael McNerney, CIBSE	David Taylor, Chief Executive SEI
12.00	Alternative Design Approach for Council Office Buildings	Brian Homan, HOBA	David Taylor, Chief Executive SEI
12.20	Q & A		David Taylor, Chief Executive SEI
12.45	Lunch		
14.00	PASSES Alternative Energy Software	Kirk Shanks, DIT	Mike Murphy, Dean of Engineering, DIT
14.15	BEMS	John Fallon, Cylon	Mike Murphy, Dean of Engineering, DIT
14.30	Micro Generation	Michael Conlon, DIT	Mike Murphy, Dean of Engineering, DIT
14.45	CHP Tri Generation	Brendan Marren, CESENERGY	Mike Murphy, Dean of Engineering, DIT
15.00	Q & A		Mike Murphy, Dean of Engineering, DIT
15.15	Tea/coffee		
15.30	The International Dimension; How serious are the Yanks about energy?	David Arnold, CIBSE	Brian Norton, President DIT
15.50	The International Dimension; Energy Savings 'r' 'US' - the reality of a greener future for Uncle Sam	Tim Dwyer, ASHRAE	Brian Norton, President DIT
16.10	Q & A		Brian Norton, President DIT
16.15	Open Forum/Summation. Whereto Next ?		Kevin Kelly, CIBSE
			Brian Geraghty, Chairman CIBSE ROI





## Booking Form

Name \_\_\_\_\_

Company / Address \_\_\_\_\_

Membership Number \_\_\_\_\_

Telephone Number \_\_\_\_\_

*Please enter in boxes below number of places required*

CIBSE Member €125. ....

Student Member €20 .....

Non Member €175 .....

Amount of Cheque \_\_\_\_\_

*Lunch included in price. Cheques should be crossed and made payable to CIBSE, Republic of Ireland Region and sent with this booking form to:*

Mr. Gerard Keating,  
CIBSE Hon Secretary,  
Homan O'Brien Associates,  
Booterstown Avenue,  
Blackrock,  
Co. Dublin.

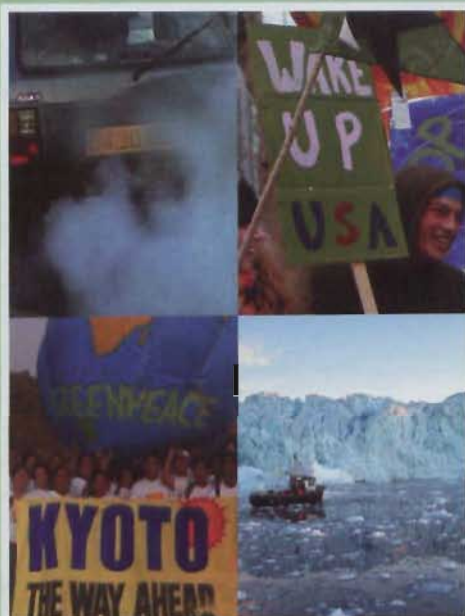
Tel: + 353 1 2056300

e-mail: [gerard.keating@homanobrien.ie](mailto:gerard.keating@homanobrien.ie)





# Republic of Cork Declared Kyoto Compliant!



**T**he work of Cork City Council's Environment Directorate — much of it overseen and implemented by Senior Engineer Michael O'Brien — will be of interest to any operation striving for greater efficiency, and especially so for its cost-cutting elements and activities encouraging less waste.

Gavin Reardon, bs news southern correspondent, reports.

Cork city is situated within a site of some 3,750 hectares on the mouth of the River Lee. It incorporates Ireland's deepest natural harbour and currently has a population of nearly 125,000. As the city continues to grow commercially, by way of construction and population size, the challenge facing city administrators is to adhere to its stated policy of sustainable development. At the turn of the Millennium the City Council began operating through newly-established directorates devised to underpin processes of local government reform and to provide support for strategic policy committees, of which the Environment Directorate is just one.

The Directorate is responsible for the delivery of services in relation to the provision of pure drinking water for domestic, commercial and industrial needs; drainage; waste management and operations incorporating treatment systems; and environmental monitoring and control. The broad aims are to contribute to the quality of life in the city through the development of a high-quality environment. Local people are empowered to take responsibility for their environment, while sustainable development and activities are encouraged and facilitated.

So successful has the Environment Directorate proven in its endeavours that it has achieved something even the most

powerful man on the planet, US President, George W Bush, had not. Michael O'Brien explains: "If we took Cork to be a Republic (which of course it is!), then when all our activities within the City Council are considered, we would more or less comply with the Kyoto protocol at present".

Expanding on the point, Mr O'Brien continued: "For example, we generate our own electricity, providing enough for about 1,500 homes; we run our fleet of council trucks on bio-fuels; we have a fairly strong environmental policy — every new building, such as the extension to the City Hall, is a green building. In fact, way before it was sexy to do so, all our activities were considerably 'greened'. Leading by example if you will ..."

Michael O'Brien has a further vision and goal to strive for and that is to showcase Cork as Ireland's leading ECO city through education and communication. The seeds for this ideal were sown about 15 years ago when he was involved in harnessing the geothermal energy from the hot springs in Mallow, which have heated the local swimming pool for over 20 years. That project inspired him to develop an ECO centre that was to prove something of a prototype for one of his, and the City Council's, most recent and striking success stories, that of the Lifetime Lab. It is while entertaining bs news at the site of the Lifetime Lab — located at the old Victorian

PROMOTING UNDERSTANDING,  
BUILDING A BETTER FUTURE

bs news



# Republic of Cork Declared Kyoto Compliant!



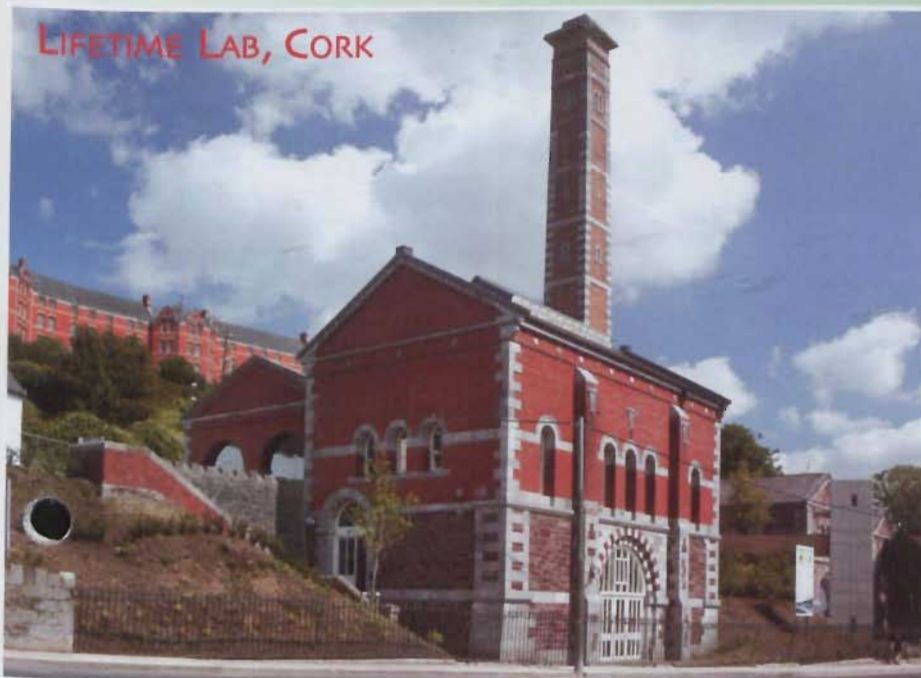
waterworks site at the western end of the city by the banks of the River Lee — that Mr O'Brien's passion and enthusiasm for the cause is most obvious. He served as project manager from conception to completion in October 2005 of the €9 million conservation project, a period of some five years. The results are as striking as they are successful and a particular source of pride and satisfaction for all involved.

SUSTAINABLE DEVELOPMENT IS THE KEY FOR INITIATIVES UNDERTAKEN BY CORK CITY COUNCIL'S ENVIRONMENT DIRECTORATE, AS REFLECTED IN THE MANY AWARDS RECEIVED BY THE LIFETIME LAB:—

IVCA Clarion Award — a major international award for Corporate Social Responsibility and Communicative Award, received in October 2006 for the Lifetime Lab's positive contribution to modern society through the development of a unique concept of a permanent interactive education exhibition.

Best Conservation/Restoration Award — Irish Architecture special award from the RIAI, June 2006;

Opus Architecture and Construction Award — Architects Jack Coughlan Associates and contractors John F Supple Ltd won the Heritage Award for conservation and adaptation of the complex in November 2005.



of a mouthfull! But it also reflects the scientific, environmental and education elements. The acorn logo symbolises not only nature, but also that small things can grow very big. We're trying to grow the place into a sustainable community, which is self-financing."

Lifetime Lab represents a triumph of organisation for the various sponsors and sources of funding, and especially so the coordination in relation to public and private partnerships involved. Michael says that initially it was difficult getting each sponsor onboard but that, as they became more involved in the process, they came to believe in the concept. "There was a niche market out there for a venue such as this" says Michael, "and we listened to expert opinions in developing it."

The Lifetime Lab is an educational facility and corporate resource centre created to raise the public's awareness of their environment under the operating slogan: "Promoting Understanding, Building a Better Future" It is a unique attraction for visitors of all ages with its modern interactive exhibits, themed playground, beautifully-restored buildings and equipment, and scenic views across the River Lee. The old waterworks supplied

water to the city over three centuries and are regarded as the best-preserved example of their kind in the country. The old buildings and machinery have been restored with great care. Michael O'Brien explains how they arrived at the name for the venue and ethos behind the project: "The name Lifetime Lab incorporates lifestyle, engineering and scientific considerations. The original name of Sustainable City Campus was deemed too much

Although a Cork City Council initiative, the project was part funded by the European Free Trade Association (EFTA) with a grant of €5.7million, with contributions from University College Cork (UCC). The National



# Republic of Cork Declared Kyoto Compliant!

PROMOTING UNDERSTANDING,  
BUILDING A BETTER FUTURE

KYOTO PROTOCOL

Toll Roads NTR is the principal private sector sponsor with a five-year commitment. Johnson & Johnson sponsors a dedicated bus that transports kids to the site from all over the region for a flat fee while the Department of Education funds two full-time teachers on site.

Mr O'Brien explains the educational theme: "We worked very closely with the Department to incorporate science modules from the national curriculum in our teaching programme. We have a class every day and provide a full school day with each visit. The classroom aspect is booked out through to July with bookings already coming in for the next academic year. We see this as a scientific nursery for primary and secondary schools while we're also a centre of excellence in terms of encouraging science in schools. Repeat visits are encouraged and adults are as welcome as children".

Indeed, the aim is to attract a broad cross-section of audiences. The conference centre is used to attract corporate client usage and themed talks across the entire engineering/construction/environment-related spectrum are offered on site.

The Lifetime Lab comprises five main buildings incorporating the conference centre; the steam centre which reveals how the city's water was harnessed and supplied; the schools' resource centre with its hands-on science workshops; information centre with advice on the environment; and visitor centre with interactive

displays on the environmental themes of energy, water, waste and conservation.

There is also a Cork City Energy Agency on site. This is one of only about 20 such offices within Ireland and it provides information on energy conservation, renewable energy, waste management, composting, transport initiatives, water and air



quality. It answers queries from the public and works closely with other City Council Directorates, advising and consulting on energy-related issues.

"The Lifetime Lab is a unique venue and concept", says Michael "in that we also try to practice what we preach. The entire site is heated geothermally, utilising the best control panels we can to minimise the areas to be heated. We heat the water with solar panels, which we also use to generate electricity for the external lighting. Green electricity is actually generated on site via

hydroelectric generators, and sent up into the national grid. Cork City Council is then using that indirectly to power about half of their buildings within the city.

"There are numerous other initiatives put in action by the Directorate. For instance, the landfill site on the Kinsale Road is to be converted into a 280-acre park. We're extracting and collecting the methane gas, then converting that into electricity. That electricity serves about 4% of the city's total population. In addition, we are heating as many buildings as possible geothermally, with heat extracted from the rock and from water, while something like 100 of the Council's vehicles will be running on bio-fuels by year-end."

The key theme throughout is sustainable development with collective responsibility being encouraged. However, it is not all about pure idealism ... there are few greater incentives than keeping costs down — less waste means lower charges to dispose of it; wasting less water keeps rates down; using bio fuels and geothermal technology keeps power costs down.

Looking to the future, Michael O'Brien will continue to strive for the realisation of his dream to make Cork an ECO city. "Lots of organisations take money from Europe in order to conduct research", he concluded, "but we prefer to actually demonstrate rather than research. Not everything we have tried has worked, but at least we've tried. When that's the case, you learn from it and move on. This is how we will continue."

Contact: [www.lifetime-lab.ie](http://www.lifetime-lab.ie)



# Burning For An Idea, Janfire Appoints Hevac

Nowhere on earth do more people heat homes and buildings with pellets than in Sweden. So, when seeking to source a pellet-fired boiler for the Irish market, Hevac sought out Janfire, Sweden's leading producer of pellet heating systems. As one of the longest-established players in the Irish marketplace, Hevac made the perfect fit for Janfire who, coincidentally, were also looking to expand into Europe. Hence the recent appointment of Hevac as Janfire distributor for Ireland.

Janfire company founder Jan M. Nilsson conceived his first pellet burner for commercial buildings in the late 1970s and, since then, has developed a broad range of pellet-heating systems, along with all the necessary accessories such as feeding auger and pellet storage systems. "Today, Janfire can deliver a broad range of boiler sizes", says Karl Carrick of Hevac, "from units for single-family houses up to larger commercial plants at about 2 megawatts power output".

Janfire's domestic boiler provides heat output from 3kW to 23 kW, enough to replace an annual oil consumption of approximately 10,000 litres. The burner is completely automated and self cleaning. The patented moving base of the burner chamber scrapes away slag and waste material, feeding it into the boiler's fire box. The boiler contains 50 litres of hot water, consequently, it acts like a small buffer tank and so the burner starts and stops less frequently. This gives better total



efficiency and lower CO<sub>2</sub> emissions.

One of the most recent introductions to the range is the new Janfire Integral System. This unit is integrated with the boiler, burner and water buffer, and has a self-cleaning burner which can accommodate poor-quality pellets containing raw material with low melting point. It can also be equipped with an automatic ash-handling system.

In addition to the high user friendliness of the Janfire System, the combustion principle of the burner is quite different to the other players in the market. The flame does not burn vertically from under but almost horizontally, more like an oil burner flame, giving the flame a better combustion geometry and flue gas turbulence.

Looking to the commercial sector, the Janfire System Jet is the complete system for commercial use in the power range 40kW to 600 kW. The 600kW unit can be installed in cascade system in multiples to reach higher power requirements. The system can be installed in existing boiler rooms or delivered in containers as off-site solutions.

The Jet technology is different to the domestic

system in that the burner construction incorporates a rotating burner drum. This makes the burner easy to clean and maintain, and reduces the frequency with which it needs sweeping out, to between two and four times a year. Modulating regulation gives optimal combustion conditions with extremely high performance at high as well as low power output.

In addition to the boiler units, Janfire offers a complete range of accessories such as "PelliStore", a reliable feeding auger system and smart, space-saving, storage solution. It operates via a sealed sack with cushions that are filled with air in order to push out the pellets inside the sack store. The whole process is automatically monitored and regulated. Together with the rest of the Janfire system, the store offers the end-user a complete high-quality system delivering high convenience/comfort.

The addition of the Janfire range is the perfect complement to Hevac's existing portfolio and extends its ability to provide energy-efficient, sustainable heating solutions for both domestic and commercial applications.

Contact: Karl Carrick, Hevac.  
Tel: 01 - 419 1919;  
email: [kcarrick@hevac.ie](mailto:kcarrick@hevac.ie)







**Mr Kevin O'Connell,**  
School of Control Systems  
and Electrical Engineering,  
DIT Kevin Street.

email: kevin.oconnell@dit.ie



## Correct Circuit Breaker Selection

Most people who have had to cope with their lights or sockets "tripping" are familiar with Miniature Circuit Breakers (MCB's). These are the devices that look like switches and are arranged in neat rows on one's "fuseboard" (distribution board). The faulty circuit is usually indicated by the relevant MCB showing in the off (down) position. The circuit can often be restored by turning the MCB back to the on (up) position and, if the fault has cleared, it will stay there. Their ease of use and simplicity of operation, however, belies the level of technology and engineering that is incorporated into modern MCB design.

The MCB has, in the main, replaced the fuse as the circuit protective device of choice. It is designed to protect the circuit, both against overload and short circuit. **Figure 1** depicts a typical MCB inverse time characteristic. The red portion relates to normal overloads and the blue portion relates to short circuits. The vertical axis  $t(s)$  shows the tripping

time and the horizontal axis  $x I_n$  shows the current (in multiples of nominal rated current).

**Figure 1** depicts a short circuit current  $I_1$  tripping in a short time  $t_1$  whereas a moderate overload current  $I_2$  trips in a much longer time  $t_2$ . The red portion of the characteristic is usually achieved using a thermal current-sensing device whereas the blue portion is achieved using a magnetic-sensing device. Both are incorporated in the same thermomagnetic trip unit.

### Transient Inrush Currents

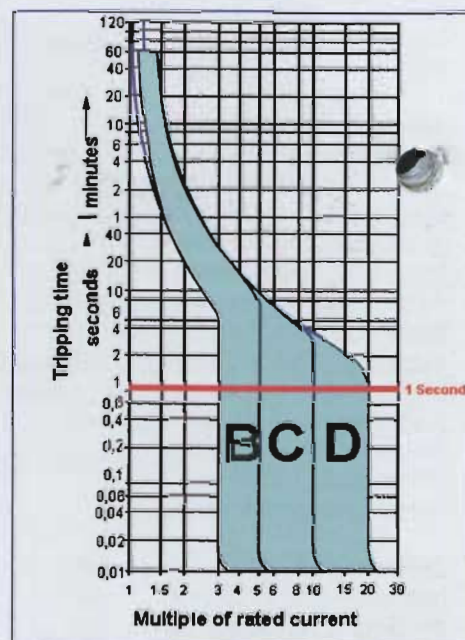
When circuits are initially turned on, there is often an inrush of current several times greater than the normal rated load current. This can be ignored for most domestic circuits but is significant when switching tungsten halogen lamp or electric motor circuits. A time-delay is required to allow the tungsten filament lamps to heat up or the motor to run up to normal operating speed. MCBs are supplied in three types — A, B and C — to facilitate each of the above situations.

The red horizontal line drawn on **Figure 2** shows that, at a time of  $t = 1\text{sec}$ :

- Type B will trip between 3 to 5 times rated current;
- Type C will trip at 5 to 10 times rated current;
- Type D will trip at 10 to 20 times rated current.

### Prospective Short Circuit Current {PSCC} ( $I_k$ )

This is the maximum RMS current



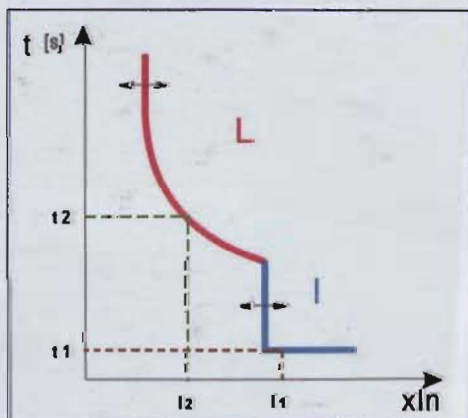
**Figure 2** — Characteristics of Class B, C and D MCB's each with the same current rating but with different delay settings.

that will flow at a particular point in the event of a short circuit and is sometimes called the fault level. This is one of the most important factors to be considered when selecting a circuit breaker for an application. The nearer the circuit breaker is to the supply point, the greater will be the value of  $I_k$ .

The consequences of using a circuit breaker with an insufficient breaking capacity are most undesirable. They include injury, explosion, fire, damage to the cables and equipment, loss of production, etc. There are many case studies where these consequences have been clearly demonstrated.

### Calculation of $I_k$ where:—

- $I_k$  = prospective short-circuit current;



**Figure 1** — Inverse Time Characteristic of a Thermomagnetic trip MCB



## Correct Circuit Breaker Selection

- kVA = supply transformer kVA;
- VL = line voltage;
- PU impedance = per unit impedance.

The value PU impedance can be approximated from manufacturer's charts or calculated from first principles.

### Types of C.B. for Low Voltage (50-600/1000V) applications

The main criteria used for circuit breaker selection are Rated Current (In) and PSCC (Ik). The three most common types in use are shown in **Table 1 (below)**.

### Selecting circuit breakers for large installations

Greater challenges are presented when selecting CBs for large installations such as factories, hotels, hospitals, etc. The distribution system is more complex and fault levels are high. The objectives to be achieved include:—

- (1) Achieving safety on site;
- (2) Identifying and isolating the zone where the problem is;
- (3) Limiting the fault effects on the rest of the installation;
- (4) Limiting stresses on components and damages to the affected zone;
- (5) Guaranteeing service continuity (to rest of plant);
- (6) Guaranteeing restoration of power when fault is cleared;
- (7) Supplying personnel and management with a clear situation.

### Future-proofing

There is a strong possibility that electrical installations will be extended and upgraded, particularly

in industrial situations where new manufacturing units are introduced. During these upgrades the supply transformer size may be increased or its position changed. This will have fault level implications for the existing installation, usually resulting in an increased fault level. It is critically important that the breaking capacity of the existing circuit breakers is not exceeded resulting from the change. It is for this reason that the breaking capacity of main circuit breakers should be at least 40kA rating. Down stream circuit breakers should also be rated appropriately using the same rationale. This will avoid the significant extra costs involved in replacing all existing circuit breakers.

When the ESB is upgrading the supply network, the location and size of their transformers may be changed without prior warning to customers. Again this will change the fault level in the customer's installation and may lead to unwanted consequences. Thus, assuming a fault level of 40kA at the supply point is always good practice given that safety and reliability of supply are of the utmost importance.

### Back-up protection

Coordinating two inline devices so that the major device affords additional protection to the minor device, **Figure 3**.

Circuit breaker B can have a lower breaking capacity than the fault level at C, provided that circuit breaker A can satisfy the following conditions:—

- Its breaking capacity is greater than the fault level at A;
- Its let through energy is limited to such a level that it can be

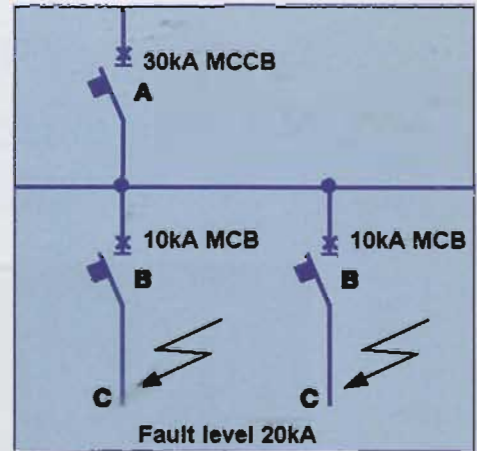


Figure 3 — Back-up protection

withstood by MCB at B and the associated downstream circuit conductors.

In the event of a fault at C, both upstream CBs will trip but CB at A will operate milliseconds ahead of the CB at B. The advantage of this arrangement is that the cost of circuit breakers B will be reduced. The disadvantage is that all circuits downstream from A will lose supply once circuit breaker A operates.

Karl Rooney of ABB delivered a very interesting lecture on the above topic in DIT Kevin Street recently as part of the ongoing CIBSE technical lecture programme. CPD certificates were presented to those who attended.

Contact: Karl Rooney, ABB.  
Tel: 01- 405 7374;  
email: karl.rooney@ie.abb.com

*Kevin O'Connell of DIT would like to acknowledge the assistance of ABB for their help in the preparation of this article and permission to use the explanatory diagrams which they provided.*

*Next month's article will explore different types of discrimination available — Current Limiting Circuit Breakers, Electronic Trip Units, and Early Fault Detection and Prevention units.*

Type	Rated Current (In) A	PSCC (1k) kA
Miniature Circuit Breakers (MCB's)	6 to 1000	6 to 25
Moulded Case Circuit Breakers (MCCB's)	6 to 2200	16 to 220
Air Circuit Breakers (ACB's)	250 to 6300	42 to 150

Table 1



# better business

## Why You Might Consider Re-mortgaging



Brian Culleton, Foresthill Financial Planning

If you took out your mortgage a number of years ago it is quite likely that you are paying a higher rate of interest than need be. This is possibly because:—

- New considerably-cheaper mortgage products have come on the market since then, most notable of which is the tracker mortgage;
- With every new rate change comes a new league table i.e. the most competitive rate may swing to a different institution;
- Substantial increases in the value of your property may entitle

you to a better rate (because you have a better "loan to value" % than before);

- Institutions may simply not inform you or offer you their most competitive rate. This seems unbelievable but lenders very often offer "new" customers better rates than their esteemed existing customers!

By switching to a more competitive product you could potentially save yourself thousands of euro in interest, or cut years off the term of your mortgage.

### Equity Release

Due to the phenomenal growth in house prices over the past 10 years or so, you probably now have considerable equity in your property. You may decide to utilise this for a number of different reasons, such as:—

- The purchase of an investment property or holiday home abroad;
- To help your children with a deposit for a new house;
- For various other personal reasons.

### Debt Consolidation

Re-mortgaging is an opportunity to consolidate other expensive loans on a once-off basis. These can include credit cards, personal loans, car finance, etc. These kinds of loans would normally be charged at considerably higher interest rates.

### Reduced Legal Costs

With the market now more competitive, some institutions will now cover the legal costs involved in transferring your mortgage.

As the foregoing illustrates, the market is now far more sophisticated than a number of years ago. The choices available from financial institutions are as variable as the different situations they are designed for. In short, there is a solution for virtually every situation.

Moreover, the competitive nature of the marketplace has given rise to a rate war between the different providers. Borrowers are now taking advantage of this rate war to make substantial savings on the cost of their overall borrowings. Here are a couple of examples of people who did so.



# better business

## Why You Might Consider Re-mortgaging

### Example 1: Experienced Investor

John has a mortgage on his family home of €146,000 and two investment properties valued at €760,000 with combined mortgages of €316,000. He and Jane have two car loans, overdraft on credit cards and small personal loan from the credit union.

#### Issues:—

Short-term debt of €46,000 is causing significant cash flow problems, the monthly cost of €3,900 to service all borrowings proving onerous.

#### Action:—

Re-mortgaged the two investment properties for €508,000 on an interest-only basis for three years, clearing homeloan and all short-term debt.

#### Result:—

Interest only cost of borrowing €1,800 per month so cashflow position improved by €2,000 per month. Other benefits include better rate and flexibility to pay lump sums off new mortgage; homeloan cleared; all short-term debt cleared; set up monthly savings plan of €800 per month.

### Example 2: New Investor

Sean (43) and Sharon (40) are partners and both were homeowners. Both properties were worth in the region of €400,000 each with mortgages of €140,000 and €175,000 respectively. They had decided to purchase a house together.

#### Issues:—

They wished to purchase a new home together and a holiday home abroad. They had very little savings and felt that they had to sell one or both of their existing houses to progress the two deals.

#### Action:—

They chose a new home for €600,000 in Ireland and a holiday home for €250,000 in Spain. Costs involved were: deposit on new home €60,000; stamp duty @ 7.5% of €45,000; and deposit on Spain of €50,000. Existing properties were worth €800,000 so they released equity of 85% — €680,000. Paying off existing mortgages of €315,000, left €365,000 for the new purchases.

#### Result:—

The required cash of €155,000 to do the two deals was then raised without having to sell either of the properties. Subsequently, individual mortgages were raised against the two new properties at competitive tracker rates.



# Plumb Lines

heard it on the grapevine ...



## NOEL TRAYNOR – PASSING OF AN ICONIC FIGURE



As we went to press we learned of the death of Noel Traynor, an iconic figure within building services. He was one of the industry's founding father-figures and over a career spanning an incredible 70

### LIFE ON THE OCEAN WAVE

SEI has commenced testing of a large-scale ocean energy demonstrator, Ocean Energy Buoy (OE Buoy) off the coast of Galway. The OE Buoy has been developed by Ocean Energy Ltd and is funded by SEI as part of Phase 1 of the Government's Ocean Energy strategy. The purpose of the testing is to determine cost, reliability and efficiency before deploying a pilot of the full scale

### BOTTLE OF BUBBLY FOR THE BEST CAPTION

Just what Colin Murphy was at down on his knees in front of Margaret Dolan during the recent CIBSE dinner is anyone's guess. Margaret is indeed a formidable lady but, I can't imagine what Colin had done to be grovelling in such a cowering fashion. Bottle of champagne to the best (printable!) caption to arrive by email to [pat@pressline.ie](mailto:pat@pressline.ie) on or before Friday, 9 March.

years he played a pivotal role in developing the business. The supreme professional, he ran a very successful practice but still found time to devote the same energy, enthusiasm and professionalism to further the cause and aims of the sector as a whole, most notably though his sterling work on behalf of CIBSE. It was most appropriate that a minute's silence was observed in his honour at the recent Institute annual dinner.

His passing marks the end of an era and he will be sadly missed by his many friends and colleagues in building services. A comprehensive appreciation on Noel will feature in next month's edition of *bs news*.

device in 2008. David Taylor, Chief Executive, SEI, says that the most energetic waves in the world are located off the West coast of Ireland. As this sector progresses from its current R&D stages, he expects Ireland to take the lead and capitalise on this market which may be worth up to €2 billion by 2025.

Life on the ocean wave has taken on a whole new meaning.



### CO<sub>2</sub> OBESITY!

Scientists have calculated that people in the UK and Ireland are responsible for a staggering nine tonnes of carbon dioxide emissions each year. Apparently, electricity usage and heating generates six tonnes of CO<sub>2</sub> with the remainder coming from transport-related activity. Nine tonnes of CO<sub>2</sub> is difficult to imagine but, to put it into perspective, it is enough to fill two olympic-sized swimming pools.

So, instead of this being a weight off your mind, I trust that it is quite a heavy burden and one which you will reduce. Measures to minimise obesity are all the rage at the moment ... let's extend the drive to include CO<sub>2</sub> obesity.

### SPARSE SPEECH FULL OF BULL\*\*\*\*!

Congratulations to Brian Geraghty, CIBSE Chairman, whose after-dinner speech at the recent annual dinner was concise and to the point. He also got the mix right by way of serious comment and humour.

Those of you who missed it would do well to ask him for a copy of his text, especially the stories relating to "good management" principles. Never before have I come across such "bull\*\*\*\*" that made sense! Well done Brian.

### IS THIS REALLY HAPPENING?

Having long-since bemoaned the lack of initiatives in relation to a register of domestic installers, just like the proverbial bus two come along at the same time!

Bord Gáis Networks has just launched the Registered Gas Installers Programme while the NSAI Heating & Plumbing Committee is also making considerable progress.



## Water Tight Solutions

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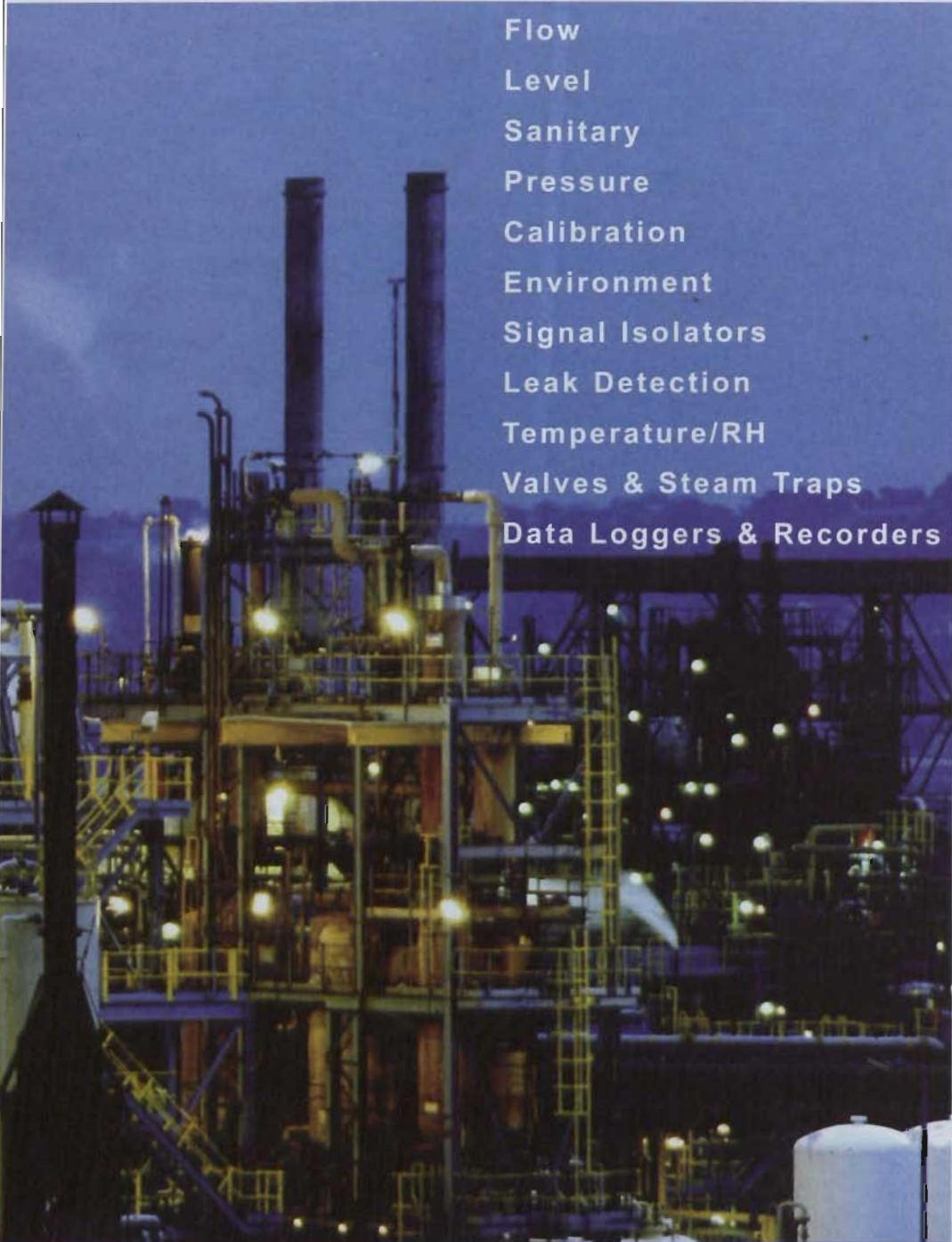
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4 Walkinstown Road, Dublin 12.

Tel: 01 - 452 2355/452 2229

Fax: 01 - 451 6919

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